

NOTES ON NEOTROPICAL MALPIGHIACEAE—IV

William R. Anderson
University of Michigan Herbarium
North University Building
Ann Arbor, Michigan 48109-1057

The notes that follow are a true miscellany, published here for diverse reasons. It would be much better, of course, if they could appear in the context of complete monographic treatments of these groups, but monographs of large genera like *Bunchosia*, *Byrsonima*, and *Heteropterys* are years in the future, and much of what follows cannot wait that long. Several of the new species are needed for floras, or have already been cited as *nomina nuda* in floristic lists. In other cases, notes of explanation are needed for actions taken or soon to be taken; for example, non-specialists seeing my recent annotations on specimens may reasonably wonder why I have abandoned a well-established name like *Heteropterys beecheyana* Adr. Juss. for *H. brachiata* (L.) DC., and why I am using *Mascagnia divaricata* (H. B. K.) Nied. for the species traditionally called *M. ovatifolia* (H. B. K.) Griseb. Moreover, a number of the entries supplement Niedenzu's 1928 monograph by clarifying problems that he had to leave unresolved, usually because he did not have the opportunity to study critical collections in Paris and London. I trust that the relevance of each entry will be obvious to informed readers.

Bunchosia itacarensis W. R. Anderson, sp. nov.—TYPE: BRAZIL. Bahia: Mun. Itacaré, 3 km S of Itacaré, forest at edge of ocean, Dec fl, *Mori et al. 13081* (holotype: MICH!; isotypes: CEPEC, NY, not seen).

Frutex vel arbor parva 2-3 m alta, ramis permox glabratis. Lamina foliorum majorum 14-21 cm longa, 6.7-9.2 cm lata, permox glabrata, abaxialiter biglandulosa prope basim; petiolus 10-12 mm longus eglandulosus; stipulae 2-3 mm longae. Inflorescentia saepe ternata. Sepala utrinque glabra, margine saepe ciliata. Gynoecium bicarpellatum; ovarium dense sericeum; styli 2, 1.4 mm longi, liberi. Fructus (siccus) 10-11 mm longus, 12-14 mm diametro, glabratus, laevis.

Shrub or small tree 2-3 m tall; stems initially very sparsely sericeous with hairs ca 0.5 mm long but soon quite glabrate. Lamina of larger leaves 14-21 cm long, 6.7-9.2 cm wide, elliptical or somewhat ovate, cuneate to almost rounded at base, very slightly revolute and reddish at margin, abruptly acuminate at apex to an attenuate tip 5-13 mm long, initially very sparsely sericeous but soon quite glabrate on both sides, bearing a pair of large impressed glands below at base and otherwise eglandular, the fine reticulum prominent on both sides, especially above; petiole 10-12 mm long, glabrous, eglandular; stipules 2-3 mm long, triangular, borne on adaxial face of petiole at base, glabrous. Inflorescence axillary, either simple or ternate with the 2 side branches axillary to much-reduced leaves (hardly larger than the floriferous bracts) at the first node, loosely sericeous to glabrescent, the individual pseudoracemes 3-6 cm long, the 8-14 flowers mostly decussate; floriferous bracts 1.5-2.5 mm long, triangular; peduncle 1-2.5 mm long; bracteoles ca 1 mm long, triangular, one or sometimes both bearing a large eccentric

abaxial gland, this becoming much enlarged and discoid in fruit; pedicel 3–4 mm long, to 8 mm in fruit. Sepals 1–1.5 mm long beyond glands, obtuse or rounded at apex, appressed, glabrous on both sides, often ciliate on margin, the anterior eglanular, the lateral 4 biglandular, the glands 2.5–3 mm long, elliptical or obovate, free and often reflexed distally. Petals yellow, glabrous, at least some glandular-fimbriate partly to completely around the limb; no flowers with a full set of petals available for description. Stamens glabrous; filaments 2–2.5 mm long, up to 1/2 connate, those opposite petals shorter and abaxially swollen at base; anthers 1–1.5 mm long, the connective yellow or light brown. Gynoecium bicarpellate; ovary 1.3 mm high, densely sericeous; styles 2, 1.4 mm long, quite distinct or connate only at base, glabrous except for base, the stigmas large, peltate. Fruit (dried) 10–11 mm long, 12–14 mm in diameter, depressed-globose, glabrate, the wall smooth.

ADDITIONAL SPECIMENS EXAMINED. **Brazil.** BAHIA: Mun. Itacaré, 2 km S of Itacaré at second beach, 14°17' S, 38°59' W, near sea level, forest on steep rocky hillside above beach, Apr fr. *Plowman et al.* 10093 (K, MICH).

Bunchosia itacarensis is named for the only locality from which it is known. In this difficult genus it is always risky to speculate on relationships, but this species is presumably to be compared to *B. apiculata* Huber, which occurs in similar habitats from Ceará to French Guiana and also has a bicarpellate gynoecium with free styles. *B. apiculata* has a glabrous ovary, longer styles, much smaller leaves, simple inflorescences, shorter stipules, and smaller granulate fruits.

Bunchosia lindeniana Adr. Juss., Arch. Mus. Hist. Nat. 3: 335. 1843.—TYPE: MEXICO. Veracruz: Miradores, *Linden 911* (lectotype, here designated: P-JU 11521!; isolectotypes: G, K!, MICH!).

Bunchosia lanceolata Turcz., Bull. Soc. Imp. Naturalistes Moscou 36: 582. 1863.—TYPE: MEXICO. Veracruz: Orizaba, *Botteri s.n.* (KW?).

Bunchosia gentlei Lundell, *Wrightia* 6: 27. 1978.—TYPE: GUATEMALA. Dept. Izabal: Puerto Mendez, *Contreras 10323* (holotype: UTD, not seen; isotypes: BM!, K!, LL, MICH!).

This is probably the commonest species of *Bunchosia* in tropical Mexico and northern Central America, marked by its hairy three-carpellate ovary, emergent completely connate styles, strongly three-angled stigma, and glabrous or only sparsely sericeous leaves. It is extremely variable, especially in leaf size and shape, and the type of *B. gentlei* seems to be only a narrow-leaved form that does not merit taxonomic recognition. Of Jussieu's two syntypes, *Linden 911* is the better collection and I have chosen it as lectotype for that reason. Of the other syntype, *Galeotti 4340* from the same locality, I have seen the specimen in P, annotated by Jussieu, and two sheets in K; it represents the same species.

Niedenau (1928, p. 653) recognized *B. lanceolata*, and he was followed by Standley & Steyermark (1946) in the Flora of Guatemala, but on the basis of Turczaninow's description alone I would be ready to assign his name to synonymy under *B. lindeniana*, which was not mentioned in the Flora of Guatemala. Niedenau listed four Botteri collections from Orizaba: s.n. in 1856, 489 in 1857, 1093, and 1109. I have studied duplicates of 1093 and 1109 at K, and both are typical representatives of *B. lindeniana*, but I have not yet seen the specimen(s) available to Turczaninow, and until I can do that I prefer not to designate a lectotype for his name. Indeed, if he saw only one specimen, lectotypification will not be necessary.

Bunchosia ursana W. R. Anderson, sp. nov.—TYPE: COSTA RICA. Puntarenas: Golfito, Jiménez, entre Agua Buena y Bancquitas, Jan fl, *Herrera 4806* (holotype: MICH!).

Frutex 1.5–3 m altus, ramis sparsim sericeis vel glabrat. Lamina foliorum majorum 17–26 cm longa, 7–10.5 cm lata, ovata vel elliptica, basi cuneata, apice acuminata acumine 13–25 mm longo, permox glabrata; petiolus 7–11 mm longus, sparsim sericeus vel glabratus; stipulae 0.4–0.7 mm longae. Sepala abaxialiter glabra vel proximaliter tomentosa distaliter glabra, margine ciliata, adaxialiter glabra. Petala glabra, 4 interiora limbo toto circuitu glanduloso-fimbriato; petalum posticum ungue 3.5–4.5 mm longo, limbo 3.5–4.5 mm longo latoque. Filamenta sepalis opposita longiora, petalis opposita breviora. Gynoecium tricar-pellatum, glabrum, 4–4.5 mm longum, cylindricum; styli 3, basi connati, apice liberi, inter basim et apicem plus minusve cohaerentes; stigmata libera, magna, peltata.

Shrub 1.5–3 m tall; branches very sparsely sericeous to quite glabrate. Lamina of larger leaves 17–26 cm long, 7–10.5 cm wide, ovate or elliptical, cuneate at base, flat at margin or very slightly revolute, acuminate at apex to an attenuate tip 13–25 mm long, initially very sparsely sericeous but soon nearly or quite glabrate on both sides, bearing 1–2 glands below at base on each side of midrib and several in a distal row extending 1/3–2/3 of the lamina, usually closer to margin than midrib, the fine reticulum more or less prominent above; petiole 7–11 mm long, very sparsely sericeous to glabrate, eglandular; stipules 0.4–0.7 mm long, borne on adaxial face of petiole at base. Inflorescence an axillary pseudoraceme without vegetative leaves, white-sericeous to glabrescent in fruit, 6–17 cm long, the 15–35 (–50) flowers borne in no regular order; bracts 1–1.5 mm long, triangular; peduncle 0–0.7 (–1) mm long; bracteoles apical or subapical, 0.7–1 mm long, one of each pair usually bearing a large abaxial gland; pedicel 4.5–5.5 mm long. Sepals 1–2 mm long beyond glands, 1.5–2 mm wide, obtuse to rounded at apex, pressed against filaments in anthesis, abaxially glabrous or proximally tomentose and distally glabrous, ciliate on margin, adaxially glabrous, the anterior eglandular, the lateral 4 biglandular with the glands 2–3 mm long, glabrous or sparsely pilose, detached and spreading to reflexed in the distal 1/3–1/2. Petals yellow, glabrous, the inner 4 glandular-fimbriate all around limb, the outermost irregularly incised with some divisions glandular; 2 anterior-lateral petals strongly reflexed, with claw 1.5–2 mm long and limb 6–7 mm long and wide, deeply concave; posterior petal erect, with claw 3.5–4.5 mm long and limb 3.5–4.5 mm long and wide, flat, orbicular; 2 posterior-lateral petals intermediate in size, stance, and concavity of limb. Stamens glabrous; filaments 1.5–3.5 mm long, alternating between longer opposite sepals and shorter opposite petals, up to 1/2 connate; anthers 1.2–1.5 mm long, the connective yellow or light brown. Gynoecium tricar-pellate, glabrous, 4–4.5 mm long, proximally cylindrical with the ovary (ca 1–1.5 mm high) grading imperceptibly into base of styles; styles 3, ca 3 mm long, connate at base, free at apex, strongly to weakly coherent between base and apex; stigmas free, large, peltate. Intact fruit not seen, but pyrenes ca 9 mm high and 7 mm across, suggesting a fruit at least 12 mm in diameter, probably larger.

ADDITIONAL SPECIMENS EXAMINED. **Costa Rica.** PUNTARENAS: steep forested slopes above Golfito, 8°38' N, 83°10' W, 100–300 m, Jan fl, *Burger & Matta 4718* (CR, F, MO, NY); moist forest on steep-sided ridge 5 km W of Rincón de Osa, Osa Peninsula, 8°42' N, 83°31' W, 50–200 m, Jan fl, *Burger & Liesner 7223* (CR, F); primary forest 2 km NW of Palmar Norte, 8°58'30" N, 83°28' W,

100–300 m, May fl, *Grayum et al.* 7538 (MO); disturbed primary forest, Rincón de Osa, 20–300 m, Feb fl, *Liesner* 1772 (MO), 1964 (MICH); Rincón de Osa, Oct fr, *Mata U.* 473 (CR).

This species is known only from the Osa Peninsula of Costa Rica and adjacent areas on the mainland; the epithet reflects that provenance, *ursa* in Latin and *osa* in Spanish both meaning *she-bear*. *Bunchosia ursana* is distinguished from all other described species by its large nearly glabrous leaves, minute stipules, glandular-fimbriate petals, posterior petal with a very long claw, filaments alternating between long and short, glabrous tricarpellate gynoecium with the styles connate at base, coherent in middle, and free at apex, and three large peltate stigmas.

Bunchosia veluticarpa W. R. Anderson, sp. nov.—TYPE: COSTA RICA. Puntarenas: Monteverde lower community, Pacific slope, 10°18' N, 84°48' W, premontane wet forest, 1350 m, Aug fr, *Anderson* 13805 (holotype: MICH!; isotypes: BM!, CAS!, CR!, DUKE!, F!, MEXU!, MO!, NY!). Fig. 1.

Arbor 4–18 m alta, ramis primo dense et pertinaciter aureosericeis. Lamina foliorum majorum 12–20.5 cm longa, 5.5–8.5 cm lata, supra primo aureosericea mox glabrata, subtus pertinaciter tomentosa. Inflorescentia 5–9 cm longa, sine foliis vegetativis. Petala flava, omnia eglandulosa vel petalum posticum basi limbi parum glandulosum, 4 interiora abaxialiter sparsim sericea. Antherae connectivo luteo vel brunneolo. Ovarium tricarpellatum, densissime tomentosum; stylus (ex 3 stylis connatis) tomentosus, stigmatibus trilobis. Fructus usque ad 3 cm longus, 2.5 cm diametro, dense et pertinaciter tomentosus.

Trees 4–18 m tall; stems densely and persistently golden-sericeous during the first year, glabrescent in later years. Lamina of larger leaves 12–20.5 cm long, 5.5–8.5 cm wide, elliptical or slightly obovate, cuneate at base, mostly acuminate (sometimes obtuse or acute) at apex, bearing several small impressed glands abaxially against base of midrib and many others scattered throughout lamina, initially loosely golden-sericeous above but soon glabrate except for midrib, densely and persistently tomentose below, the hairs of the midrib mostly golden and appressed, those of lamina white, with a relatively short stalk and a crosspiece 1–1.5 mm long, sinuous to twisted; petiole 8–12 mm long, loosely sericeous, eglandular or more commonly bearing a pair of impressed glands between middle and apex and a small bulbous gland at base near one or both stipules; stipules 1.5–2 mm long, borne on adaxial face of petiole at base, triangular, abaxially hairy, adaxially glabrous. Inflorescence an axillary pseudoraceme without vegetative leaves, golden-sericeous to subvelutinous, 5–9 cm long, the 9–24 flowers borne in no regular order; bracts 1–2.5 mm long, triangular; peduncle 1–3 mm long; bracteoles apical, 0.7–1.5 mm long, eglandular or more commonly 1 or both bearing a small abaxial gland; pedicel 4–5 mm long in flower, 7–8 mm long in fruit. Sepals ca 1 mm long beyond glands, rounded, densely tomentose abaxially except near margin, ciliate on margin, adaxially glabrous, appressed in anthesis, the glands 10, 2–3 mm long, free or some connate in pairs, glabrous. Petals yellow, all but the outermost very sparsely sericeous abaxially on claw and proximal midrib, the claw ca 1 mm long, the limb ca 2.5–4 mm long, largest and most deeply concave in outermost petal, all entire or erose but eglandular or the posterior with several slightly glandular thickenings near base of limb. Filaments 2.5–3 mm long, glabrous, ca 1/2 connate; anthers 0.8–1.5 mm long, glabrous, pressed against style in anthesis, the connective yellow or light brown, non-glandular. Ovary 1.5 mm

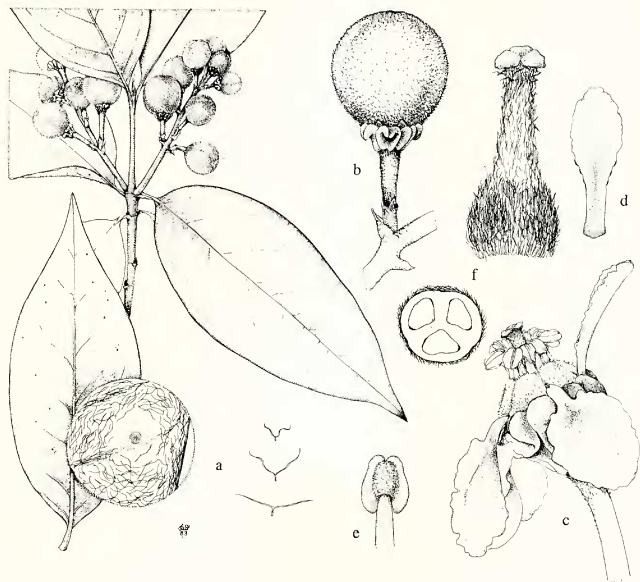


FIG. 1. *Bunchosia veluticarpa*. a) fruiting branch, $\times 0.5$, with enlargement of detached leaf showing abaxial glands and vesture, $\times 5$, and separate hairs, $\times 10$; b) immature fruit, $\times 1.5$; c) flower, side view, $\times 5$; d) posterior petal, adaxial view, $\times 5$; e) anther, abaxial view, $\times 10$; f) whole gynoecium and cross-section of ovary, both $\times 10$. Drawn by Karin Douthit, a–b from Hartshorn 1904, c–f from Haber 303.

high, depressed-globose, tricarpellate, very densely tomentose; style (formed by 3 completely connate) 2.5 mm long, tomentose its whole length, the stigma massive, 3-lobed. Immature fruit 15–25 mm long, 15–25 mm in diameter, green, orbicular to obovoid, at maturity (?) up to 30 mm long, turning yellowish, all sizes seen densely and persistently tomentose or subvelutinous with short twisted hairs, the vesture partially and unevenly abraded from some of the largest fruits, probably after collection.

ADDITIONAL SPECIMENS EXAMINED. **Costa Rica.** CARTAGO: Moravia–La Chanchera, 1300 m, León 1401 (US); 25 km SE of Turrialba between Jicotea and Moravia, wet secondary subtropical forest, 1000 m, Dec fl., Little 20186 (CR).—PUNTARENAS: Monteverde, 1400–1500 m, Jul fr., Dryer 1586 (F, MICH, MO), Mar fl., Haber 303 (MICH), Jul fr., Hartshorn 1904 (MICH, MO); Monteverde, 1300 m, pasture, Sep fr., Haber ex Bello & Clagget 5532 (MICH); Monteverde to San Luis Valley, cliff edge along Río San Luis, 1000–1400 m, Jul fr., Hammel 17092 (MICH).

Bunchosia veluticarpa is named for its densely and persistently hairy fruit, which is unlike anything I have seen in the tricarpellate species of the genus, in which the ovary is often hairy but the hairs soon fall from the enlarging fruit.

Other noteworthy characteristics are the sparsely sericeous petals and the many small glands scattered over the abaxial surface of the lamina. The tomentose leaves resemble those of *B. biocellata* Schlecht., which seems not to occur south of Nicaragua.

Burdachia prismatocarpa ADR. JUSS., ANN. SCI. NAT. BOT., SÉR. 2, 13: 330. 1840.—
TYPE: BRAZIL. AMAZÔNAS: Rio Negro, Tefé ["Teffe"], Martius (lectotype, here designated: P-JU 11502!).

Jussieu had two syntypes, the Martius collection cited above and a specimen of *Poeppig 2911* from the same locality. Now that I have had the opportunity to study the specimens at Paris, I consider the best lectotype to be the Martius sheet in the Jussieu Herbarium; Jussieu received it as a gift from Martius in 1836.

Byrsonima altissima DC., Prodr. 1: 579. 1824. *Malpighia altissima* Aublet, Hist. Pl. Guiane 1: 455. 1775, not *M. altissima* Jacquin, 1764. *Byrsonima aubletii* Kostermans, Meded. Bot. Mus. Herb. Rijksuniv. Utrecht 25: 10. 1936.—TYPE: FRENCH GUIANA. "In sylvis Sinemariensibus," Aublet (holotype: BM!).
Byrsonima discolor Pilger, Repert. Spec. Nov. Regni Veg. 42: 179. 1937.—
TYPE: BRAZIL. Pará: ilhas altas do Macujubinsinho, Ducke s.n. (holotype: RB 20950!).

In 1982 (p. 115) I described this rare plant under the name *Byrsonima aubletii* Kostermans, which was a mistake. De Candolle's combination based on Aublet's illegitimate name was inadmissible, but the epithet *altissima* was not preoccupied in *Byrsonima*, so I should have treated De Candolle's *B. altissima* as a new species dating from 1824. The New York Botanical Garden now has specimens of this species from Maranhão, and in those the leaves are substantially larger than in previous collections (lamina to 27 cm long and 13.5 cm wide, petiole to 50 mm long).

Byrsonima blanchetiana Miq., Linnaea 22: 799. 1850.—TYPE: BRAZIL. Bahia: Jacobine Moritiba, Blanchet 3627 (holotype: U?; isotypes: BM!, K!, MO!, P!).

Nieden zu (1928, p. 752) recognized this species, placing it next to *Byrsonima correifolia* ADR. JUSS., 1833. In synonymy under *B. blanchetiana* he placed the earlier name *B. bicorniculata* ADR. JUSS., 1840, which he rejected on the basis of the fact that its name was based on an error of Jussieu's and did not accurately describe its anthers; that, of course, is not an acceptable basis for rejecting a name. Moreover, Nieden zu's key (p. 694) separates *B. blanchetiana* from *B. correifolia* on the basis of leaf shape, which is a difficult and variable character, and stipules supposedly distinct in *B. blanchetiana*, which is incorrect. Nevertheless, having now studied the types of all three species, I am maintaining *B. blanchetiana* as a good species. The most useful character distinguishing *B. blanchetiana* is the hairs on the abaxial surface of the lamina: they are sessile and have strongly twisted branches, producing a tightly tomentose vesture. In *B. correifolia* and *B. bicorniculata* the abaxial leaf hairs are long-stalked, with branches that are straight to somewhat twisted. Also, in *B. blanchetiana* the lamina is small, obovate, and tapered at the base, as noted by Nieden zu; its anthers are sericeous, with the connective much exceeding the locules and recurved at the apex. *Byrsonima blanchetiana* has been collected repeatedly in recent years in central Bahia, by R. Harley,

myself, and others. As for *B. correifolia* and *B. corniculata*, I remain undecided as to whether they both deserve to be recognized. There are differences between their types, but the two taxa are clearly closely related, and the more I see of the variation in their collections the more I doubt that they will both stand, but that problem needs more study.

Byrsonima concinna Bentham, London J. Bot. 7: 122. 1848.—TYPE: VENEZUELA ["BRITISH GUIANA"]. Bolívar: Roraima, *Robt. Schomburgk II 587/Rich. Schomburgk 912* (holotype: K! ["587 (912)"]; isotypes: BM! [587], CGE! [587 & 912, mounted together], F! [587], K! [912], NY! [912], P! [587], W [587]).

Byrsonima bracteolaris Bentham, London J. Bot. 7: 123. 1848.—TYPE: "BRITISH GUIANA." *Robt. Schomburgk* (holotype: K!).

I misapplied the name *Byrsonima bracteolaris* in my treatment of the Malpighiaceae of the Guayana Highland (1981, p. 109). Study of the type reveals it to lack vegetative vestiture and to have the pedicel quite erect in fruit, so it has to be considered a specimen of *B. concinna* with hairy sepals. The two are listed here for the purpose of ensuring that the well-known epithet *concinna* is retained when the two simultaneously published names are considered synonyms. The species I treated under the name *B. bracteolaris* in 1981 is described below as *B. duidana*.

Byrsonima duidana W. R. Anderson, sp. nov.—TYPE: VENEZUELA. Amazonas: Cerro Duida, summit, along valley forest between Central Camp and Brocchinia Hills, 1675 m, Aug fl, *Steyermark 58112* (holotype: NY!; isotype: VEN!).

Frutex vel arbor parva 2–4 m alta, ramis vegetativis sericeis mox vel demum glabratis. Lamina foliorum majorum elliptica vel obovata, 5.5–9 cm longa, 3–4.5 cm lata, apice obtusa vel rotundata, margine straminea, primo sparsim sericea mox glabrata, subtus non glauca; petiolus 8–12 (–15) mm longus; stipulae 2–3 mm longae, liberae, obtusae. Inflorescentia floribus singulis, bracteis bracteolisque 1.5–3.5 mm longis, 1.5–2.5 mm latis, triangularibus, post maturitate fructus persistentibus; pedicellus in fructu et floribus vetustioribus decurvatus. Sepala abaxialiter sericea vel tomentosa, adaxialiter glabra, per anthesin appressa, in fructu accrescentia. Petala alba demum rosea. Antherae 1.4–1.7 mm longae, glabrae, loculis 1.1–1.3 mm longis, dorsiventraliter complanatis, anguste alatis ala membranacea 0.1–0.2 mm lata, connectivo loculos 0.2–0.5 mm superanti. Ovarium glabrum; styli ca 3 mm longi. Fructus 5 mm diametro, 6 mm altus (siccus).

Shrubs or small trees 2–4 m tall; stems initially sericeous, soon or eventually glabrate. Lamina of larger leaves 5.5–9 cm long, 3–4.5 cm wide, elliptical or obovate, cuneate at base, obtuse or rounded and sometimes apiculate or retuse at apex, initially sparsely sericeous but soon quite glabrate, the margin yellow, 0.2–0.4 mm wide, revolute, not glaucous below, the lateral veins and reticulum usually prominent below or on both sides; petiole 8–12 (–15) mm long, loosely sericeous to glabrate; stipules 2–3 mm long, free, ovate, obtuse, abaxially sericeous to glabrate, adaxially glabrous except hirsute at base. Inflorescence 5–10 cm long, sericeous or tomentose, the flowers borne 1 per bract; bracts 1.5–3.5 mm long (the lowest pair up to 6 mm long), 1.5–2.5 mm wide, triangular, loosely sericeous to nearly glabrous, spreading or reflexed, persistent past maturity of the

fruit; peduncle none; bracteoles like bracts but usually smaller; pedicel 5–7 mm long, loosely sericeous or tomentose, circinate in bud, decurved in fruit and old flowers. Sepals all biglandular, 1.5 mm long beyond glands, ca 2 mm wide, rounded at apex, abaxially densely sericeous or appressed-tomentose, adaxially glabrous, appressed in anthesis, accrescent in fruit; glands 1.6–2 mm long, pink. Petals white, turning pink in age, glabrous, the outermost \pm completely covering all others in bud. Filaments 2.6–2.8 mm long, abaxially glabrous, adaxially hirsute basally; anthers 1.4–1.7 mm long, glabrous, the locules 1.1–1.3 mm long, dorsiventrally flattened and bearing prominent membranous longitudinal wings 0.1–0.2 mm wide, the connective exceeding locules by 0.2–0.5 mm, the extension globose, glandular, inserted slightly between locules. Ovary ca 1 mm high, glabrous, all 3 locules fertile; styles ca 3 mm long, curved toward anterior sepal. Fruit 5 mm in diameter, 6 mm high (dried), ovoid, glabrous, subtended by the accrescent reddish calyx, the nut rugose.

ADDITIONAL SPECIMENS EXAMINED. **Venezuela.** AMAZONAS: Cerro Sipapo, edge of savanna. Base Camp, 125 m, *Maguire & Politi* 28287 (NY); Cerro Duida: forested and open area on plateau of Duida above Culebra, 3°36' N, 65°42' W, 1250 m, *Liesner & Morillo* 18618 (MICH); Orinoco River, 30 km below La Urbana, 80 m, *Maguire & Maguire Jr.* 29069 (NY); open scrub, Caño Negro basin, 2000–2300 m, *Maguire et al.* 29679 (NY, VEN); summit, 1320–1440 m, *Tate* 566, 595 & 740 (all NY); Cerro Marahuaca, forested steep sandstone southeast-facing slopes and bluffs, above branch of Caño Negro, south-central portion of meseta, downstream from "Sima Camp," 3°43' N, 65°31' W, 1220–1350 m, *Steyermark & Holst* 130633 (MICH).

Collected with flowers in August and from January to March, and with fruits in November and March.

This is the species I treated under the name *Byrsonima bracteolaris* Benthham in 1981; see the discussion above under *B. concinna*. It is distinguished by its initially sericeous stems and leaves, the pedicels that are decurved in fruits and old flowers, the yellow margin of the lamina, and fact that the flowers are never more than one per bract.

Byrsonima macrophylla (Pers.) W. R. Anderson, comb. nov. *Malpighia macrophylla* Pers., Syn. Pl. 1: 506. 1805.—TYPE: BRAZIL. (holotype: P-JU 11485!).
Byrsonima nervosa DC., Prodr. 1: 579. 1824.—TYPE: BRAZIL. (holotype: G-DC, Field Mus. neg. 8024!).

This is a distinctive species of central Brazil, a shrub or small tree usually growing among rocks in the Serra do Espinhaço of Minas Gerais and Bahia. Its large leaves, rugose above and densely and persistently tomentose below, make it easy to recognize, even in a photograph. Persoon's type was not seen by De Candolle, who cited the Persoon name as a possible synonym. Jussieu received fragments of De Candolle's type from him, which are in a packet mounted on the P-JU sheet that bears Persoon's type, so Jussieu knew the two were the same species, but in his Monographie (1843, p. 287) he used De Candolle's name, presumably because it was the oldest name in the correct genus, and cited the Persoon name as a synonym. Niedenzu (1928, p. 742) was never able to see the specimens in Paris, so he cited the Persoon name as a possible synonym for *B. nervosa* DC., noting that if it really was the same species the correct name would have to be *B. macrophylla*. Having studied Persoon's type, I can attest to its identity, and therefore see no alternative to taking up his name in *Byrsonima*.

Byrsonima microphylla Adr. Juss., Ann. Sci. Nat. Bot., Sér. 2, 13: 334. 1840.—

TYPE: BRAZIL. Bahia: *Blanchet 48* (lectotype, here designated: P!; isolectotypes: BM!, P-JU!).

From Niedenzu's 1928 key and description in *Das Pflanzenreich* it is difficult to get much of a concept of this species. In fact it turns out to be quite distinctive and easily recognized, and it is of some ecological interest. Modern collectors have found it repeatedly in recent years in the Município de Salvador between the city of Salvador and the town of Itapuã some 30 km to the northeast along the coast, and I assume that Blanchet's three syntypes came from the same area. It grows in restinga vegetation on white sand dunes, especially near the Lagoa de Abaeté. The restingas from Salvador south are fairly well collected and I have not seen this species from elsewhere, which suggests that it may be a narrow endemic. If so, its continued existence may be threatened by development of the coast for tourist accommodations, although the nearness of its sand dunes to the airport may confer some protection. Some descriptive notes should make it easier for collectors and conservationists to recognize this attractive plant:

Shrub 1–2 (–3) m tall, the stems tomentose, eventually glabrescent. Lamina of larger leaves 1.7–4 cm long, 1.4–2.7 cm wide, elliptical or obovate to suborbicular, truncate or subcordate at base, slightly revolute at margin, broadly obtuse to rounded at apex, thinly tomentose to glabrate above, persistently moderately to densely tomentose below, the hairs medifixed and sessile with twisted arms, the midrib with an admixture of straight hairs; petiole 2–3 (–3.5) mm long; stipules 1.5–2 mm long, completely and smoothly connate, the pair broadly obtuse or rounded at apex. Inflorescence (2–) 3–6 cm long, bearing 6–12 (–16) flowers in the distal two-thirds; bracts 2.5–3.5 mm long, narrowly triangular, persistent to maturity of fruits or very belatedly deciduous; peduncle none or up to 2 mm long in the lowest flowers; bracteoles like bracts but smaller; pedicel somewhat circinate in bud, decurved in fruit. Sepals all biglandular, abaxially densely tomentose, adaxially glabrous, revolute at the apex and eventually on the sides. Petals initially white, turning red in age, the margin of the limb pilose with loose spreading hairs. Anthers glabrous, the locules cylindrical, the connective exceeded by locules. Ovary glabrous. Fruit (dried) ca 5 mm in diameter.

Relatively few species of *Byrsonima* combine white petals with anthers in which the connectives are shorter than or about as long as the locules, and only one such species other than *B. microphylla* occurs near the coast of Bahia. That is *B. cacaophila* W. R. Anderson, which is otherwise quite unlike *B. microphylla*. *Byrsonima cacaophila* is a tree 10–20 m tall that grows in the wet forests of cacao plantations. It has large leaves (lamina 13–24 cm × 5.5–10 cm, petiole 12–32 mm long), compound inflorescences with the cincinni bearing 1–3 flowers, sericeous anthers, and large fruits (11 mm × 15–18 mm dried).

The species that most resemble *B. microphylla* are shrubs that grow in rocky upland habitats of the Serra do Espinhaço of Bahia and Minas Gerais, e.g., *B. oxyphylla* Adr. Juss. and *B. variabilis* Adr. Juss. It seems likely that the ancestor of *B. microphylla* was adapted to the quartzitic sands of the Serra do Espinhaço and then managed to invade the sandy restingas. A parallel is to be found in *Peixotoa*, where *P. hispidula* Adr. Juss. is a restinga species in a genus of species that occur mostly in cerrado and campo rupestre; see the monograph by C. Anderson (1982).

Byrsonima rigida Adr. Juss., Ann. Sci. Nat. Bot., Sér. 2, 13: 334. 1840.—TYPE: BRAZIL. Mato Grosso: *Gaudichaud* (holotype: P!, Field Mus. neg. 35562).

Byrsonima gautherioides Griseb. in Mart., Fl. Bras. 12(1): 112. 1858. *Byrsonima cornifolia* Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosianum Brauns-berg 1: 12. 1901, nom. superfl.—TYPE: BRAZIL. Goiás: Retiro, Rio "Urubú" [Urubú?], *Pohl 1107* (lectotype, here designated: W, Field Mus. neg. 32417!).

This is a pretty pink-flowered shrub or subshrub with slender branches from a subtterranean woody base, common in the cerrados of the Planalto of Brazil. Niedenzu (1928) recognized both *Byrsonima rigida* and *B. gautherioides*. I can see tendencies toward differences, but no clear basis for recognizing two species. Plants from Mato Grosso (*B. rigida sensu stricto*) tend to be taller, stouter, and more branched, to spring from a stouter more erect rootstock, and to have shorter petioles and narrower leaves, whereas the plants from farther east (*B. gautherioides*) tend to have shorter, slenderer, less-branched stems from a finer decumbent rootstock; their petioles are often longer and their leaves wider. There is overlap in all these characters, and until field studies permit evaluation of the habit and rootstock differences it seems best to treat these populations as a single species.

Niedenzu (1928) treated *Byrsonima rigida sens. lat.* and *B. triopterifolia* Adr. Juss. as the only members of his subseries *Eurylepis*. I agree that they are very similar and probably closely related, sharing these characteristics: leaves soon glabrate; stipules distinct; bracts and bracteoles persistent past maturity of the fruits; pedicels decurved in fruit; sepals glabrous on both sides; petals pink, sometimes fading to white; anthers glabrous, the locules cylindrical and not exceeded at the apex by the connective; ovary glabrous; fruits ca 5 mm in diameter (dried). The two can be distinguished by the characters in the following couplet:

1. Slender stems from a woody underground base, 0.2–1 (–1.5) m tall; lamina (1.5–) 2–3 (–4) times as long as wide, mostly elliptical or somewhat ovate; lateral veins and the coarser veinlets of the lamina prominent, but not the finest reticulum; red-clay cerrados of Minas Gerais, Goiás, the Distrito Federal, Mato Grosso, and Mato Grosso do Sul. *B. rigida*.
1. Woody, bushy shrubs 1–3 m tall; lamina 1–1.7 (–1.9) times as long as wide, elliptical or more commonly obovate to orbicular; intermediate veinlets and fine reticulum visible and ± prominent on both sides of the lamina, or at least abaxially; sandy soils among outcrops of quartzitic sandstone, Bahia. *B. triopterifolia*.

Camarea humifusa W. R. Anderson, sp. nov.—TYPE: BRAZIL. Goiás: Mun. Alto Paraiso, ca 20 km S of Alto Paraiso on highway GO-12, rocky campo at base of hill, 1100 m, Feb fl. *Anderson 11465* (holotype: MBM!; isotypes: MICH!, NY!). Fig. 2.

Herba perennis ramis procumbentibus e xylopodio turbinato radiantibus. Lamina foliorum majorum 12–26 mm longa, 3–7 mm lata, pilis omnibus medifixis; petiolus 0.5–1 mm longus. Flores omnes chasmogami, plerumque in umbellis terminalibus 2–4-floris portati; pedunculus 10–22 mm longus; pedicellus 3–5 mm longus. Petala aurantiaca, glabra, integra vel parum erosa; petalum posticum ungue 4–4.5 mm longo, limbo ca 5 mm longo, 7 mm lato. Filamenta 3.2–4 mm longa, glabra; antherae fertiles 0.7–0.8 mm longae, glabrae. Gynoecium glabrum; stylus ca 4.5 mm longus.

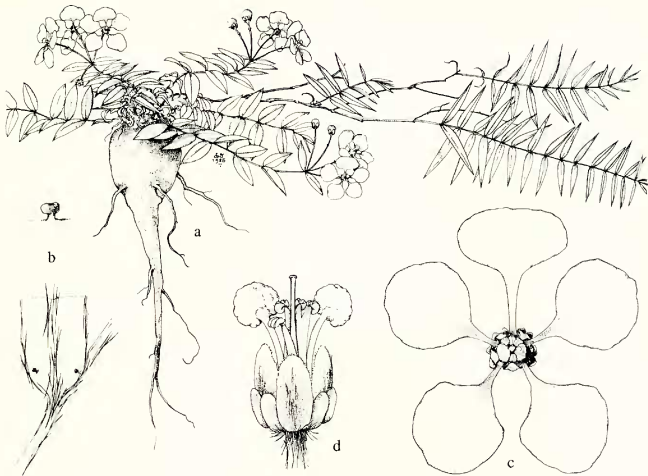


FIG. 2. *Camarea humifusa*. a) habit, $\times 0.5$; b) base of leaf, abaxial view, $\times 5$, and leaf gland, side view, $\times 25$; c) flower, viewed from above with posterior petal uppermost, $\times 2.5$; d) flower with petals removed, side view with anterior sepal in front, $\times 5$. Drawn by Karin Douthit from Anderson 11465.

Perennial herb with strongly procumbent branches up to 25 cm long radiating from a flat-topped turbinated xylopodium up to 30 mm in diameter; stems wiry, up to 0.8 mm in diameter, initially subsericeous, glabrescent in age, the hairs fine, medifixed with arms of equal length, initially straight and more or less appressed but the arms often rising and becoming somewhat sinuous in age. Leaves strictly decussate; lamina of larger leaves 12–26 mm long, 3–7 mm wide, linear-lanceolate or narrowly ovate to ovate, cuneate to rounded at base, flat or very slightly revolute at margin, acute at apex, eglandular or biglandular below near base with 1 small peltate gland on each side of midrib borne on surface of lamina somewhat in from margin, densely sericeous on margins and abaxial midrib and thinly sericeous on adaxial surface and midrib, the hairs like stem hairs or V-shaped on the adaxial midrib, the older leaves sometimes glabrescent, the lateral veins obscure or invisible on both sides; petiole 0.5–1 mm long, sericeous; stipules ca 0.3 mm long, dark, subulate, borne on stem beside base of petiole. Flowers all chasmogamous, borne in a terminal umbel of (1–) 2–4 subtended by a pair of small vegetative leaves; floriferous bracts and bracteoles 1–1.5 mm long, narrowly triangular, the bracteoles borne at apex of peduncle; peduncle 10–22 mm long, pedicel 3–5 mm long, both sericeous or glabrescent like stems. Sepals 2.5–3 mm long, 1.3–1.7 mm wide, distinct, ovate or elliptical, rounded at apex, entire or slightly erose, abaxially sericeous in center and glabrous toward margin, sparsely ciliate on margin, adaxially glabrous, flat and appressed in anthesis, the anterior eglandular, the lateral 4 biglandular with the glands 1.3–1.5 mm long, elliptical. Petals orange-yellow, glabrous, entire or somewhat erose; lateral petals spreading, the claw 2–2.5

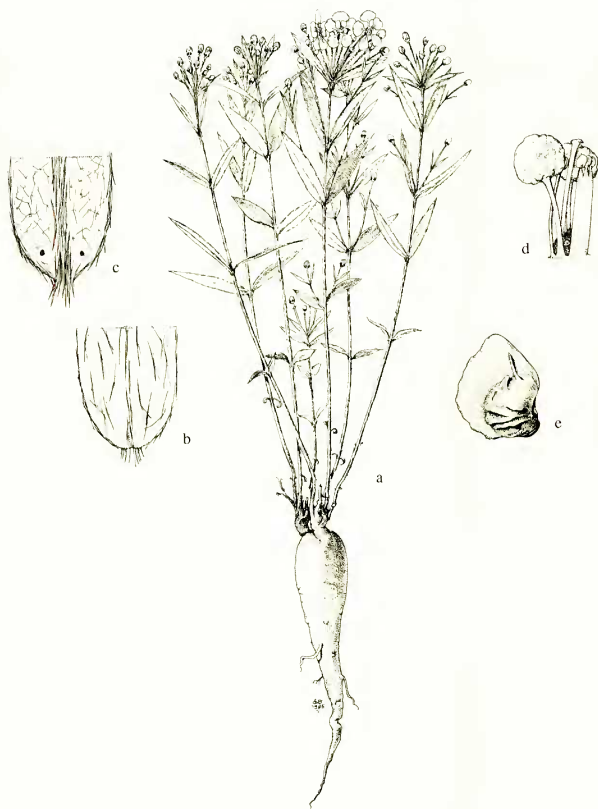


FIG. 3. *Camarea sericea*. a) habit, $\times 0.5$; b) base of leaf, adaxial view, $\times 2.5$; c) base of leaf, abaxial view, $\times 2.5$; d) androecium and gynoecium, side view, the three stamens to right opposite the posterior petal and adjacent sepals, $\times 5$; e) mericarp, side view, $\times 5$. Drawn by Karin Douthit, a-d from Pohl 1987 (W), e from Glaziov 20747 (BR).

mm long, the limb 6–7 mm in diameter, obovate or nearly circular; posterior petal erect, the claw 4–4.5 mm long, the limb ca 5 mm long and 7 mm wide, oblate. Androecium glabrous, comprising 4 fertile stamens, opposite the posterior petal, posterior-lateral sepals, and anterior sepal, and 2 staminodes, opposite the anterior-lateral sepals; filaments straight, 3.2–4 mm long, shortest opposite the anterior sepal, the anterior 3 connate only at base, the posterior 3 connate for ca 2/3–4/5 of their length; fertile anthers 0.7–0.8 mm long; anthers of staminodes converted into

oblate lobed verrucose petaloid bodies 1.5–2 mm in diameter. Gynoecium glabrous; carpels 3, 1 anterior and 2 posterior, free but borne on a common torus, each bearing a dorsal crest and 1 lateral crest on each side; style 1, ca 4.5 mm long, straight, borne on inner face of anterior carpel, the stigma apical, capitate, elliptical. Fruit unknown.

This species is most like *Camarea sericea* St.-Hil., another species of the campos of Goiás. However, the strongly procumbent habit of *C. humifusa* sets it apart from *C. sericea*, and from other species of the genus. When more and better specimens are available, with ample flowers and fruits, it may well prove possible to find additional differences between *C. humifusa* and *C. sericea*. Compare Figure 2 (*C. humifusa*) to Figure 3 (*C. sericea*).

Clonodia complicata (H. B. K.) W. R. Anderson, Mem. New York Bot. Gard. 32: 206. 1981. *Hiraea complicata* H. B. K., Nov. Gen. Sp. 5 [quarto]: 171. 1822. *Mascagnia complicata* (H. B. K.) Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 3: 4. 1908.—TYPE: VENEZUELA. Bolívar: Carichana, Orinoco, *Humboldt & Bonpland* (holotype: P-HBK!, Field Mus. neg. 37478).

Hiraea nitida H. B. K., Nov. Gen. Sp. 5 [quarto]: 171. 1822. *Mascagnia nitida* (H. B. K.) Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 3: 4. 1908.—TYPE: VENEZUELA. Amazonas: S. Barbara del Alto Orinoco, *Humboldt & Bonpland* (holotype: P-HBK!, Field Mus. neg. 37479).

In my 1981 paper on the Malpighiaceae of the Guayana Highland, I speculated (pp. 206 and 209) that *Hiraea nitida* might represent an earlier name for *Clonodia racemosa* (Adr. Juss.) Nied., or a simultaneously published second name for *C. complicata*, or possibly some species not treated in my paper. Now that I have studied the types of both *H. complicata* and *H. nitida* I can report that they are indeed conspecific, and my purpose here is simply to place *H. nitida* formally in synonymy to ensure that the epithet *complicata* will continue in use for this species.

Echinopterys eglandulosa (Adr. Juss.) Small, N. Amer. Fl. 25: 148. 1910. *Bunchosia eglandulosa* Adr. Juss., Ann. Sci. Nat. Bot., Sér. 2, 13: 325. 1840. *Echinopterys lappula* Adr. Juss., Arch. Mus. Hist. Nat. 3: 342. 1843, nom. superfl.—TYPE: MEXICO. Puebla: inter Acatlán & Chila, *Andrieux 498* (lectotype, here designated: P!, the sheet annotated by Jussieu; isolectotypes: K!, 2 sheets, both annotated by Jussieu; P-JU 11534!; P!, the sheet not annotated by Jussieu).

In my visits of the last ten years to P and K I have annotated as syntypes of this name their specimens of *Andrieux 498* and *Galeotti 4328*, even though Jussieu did not annotate the K sheets of *Galeotti 4328* and annotated the P sheet of *4328* only with his later, superfluous name, *Echinopterys lappula*. I was treating those two collections as syntypes of the 1840 name because both are cited in the 1843 Monographie. Jussieu cited no specimens in his 1840 Synopsis, so it is necessary to work from the Monographie when deciding what his types were, and because the two publications were only three years apart this practice is usually satisfactory. However, in this case it led me astray. I now realize that he had only *Andrieux 498* before 1840, which explains why only that specimen at P bears his annotations of both *Bunchosia eglandulosa* and *Echinopterys lappula*. Galeotti returned from

Mexico to Europe late in 1840, after the Synopsis was published, at which time he began arranging, numbering, and distributing his collections (McVaugh 1978). Paris must have received a sheet of *Galeotti 4328* sometime between 1840 and 1843, and that cannot be considered a syntype of Jussieu's 1840 name. There are now three sheets of *Andrieux 948* at Paris, two in the general herbarium and one in P-JU, but Jussieu's note in the Monographie, p. 342 ("v. s. herb. mus. Par.") indicates that he did not acquire his own sheet of *498* until later, and the fact that only one of the sheets in the general herbarium bears his annotation suggests that the second sheet may have been acquired later. Therefore, I am designating the annotated sheet of *Andrieux 498* in the general herbarium at Paris the lectotype of *Bunchosia eglandulosa*.

Malpighiaceae tribe **Gaudichaudieae** (Adr. Juss.) W. R. Anderson, stat. nov. Malpighiaceae subfamily Gaudichaudioideae ("Gaudichaudieae") Adr. Juss., Ann. Sci. Nat. Bot., Sér. 2, 13: 249. 1840.

Jussieu published this name with this spelling in 1840, but Morton (1968) argued that he was using it as the name of a subfamily whose spelling had to be corrected to Gaudichaudioideae. I think the argument might be made that Jussieu used the name in parallel with other names at the level of tribe, but I must admit that he also used it as a major subdivision of the family; it actually seems to have done double duty. While I would prefer to attribute the name of this tribe to Jussieu, I am validating it here at the level of tribe against the possibility that others will agree with Morton that the name has never been published, in spite of the fact that Jussieu's spelling is correct for a tribe under the present Code of Nomenclature.

Heteropterys alternifolia W. R. Anderson, sp. nov.—TYPE: BRAZIL. Bahia: Km 10–15 da BR 367 Porto Seguro para Eunapolis [39°10' W, 16°25' S], Oct fl, *Eupunino 330* (holotype: CEPEC!; isotype: MICH!). Fig. 4.

Liana lignosa, frutex, vel arbor usque ad 8 m alta, ramis sericeis. Folia alterna, subopposita, vel aliquando opposita; lamina foliorum majorum 6–10.3 cm longa, 2–4 cm lata, elliptica, basi cuneata, margine revoluta, apice obtusa vel rotundata saepe apiculata, supra permox glabrata, subtus pertinaciter metallosericea et aliquot glandulis parvis marginalibus munita; petiolus 4–13 mm longus, plerumque biglandulifer prope medium. Inflorescentia umbella (3–) 4–6-flora, pedunculo 3–6 mm longo, pedicello 5–7 mm longo. Petala lutea, glabra, carinata; petalum posticum limbo glandulosodentato proximaliter. Antherae 1–1.2 mm longae. Samara 35–50 mm longa, ala dorsali 30–42 mm longa, 12–20 mm lata, nuce 5–8 mm diametro, lateribus laevibus vel unicristatis crista brevi, usque ad 1.5 mm lata.

Woody vine, shrub to 4 m tall, or tree to 8 m tall; stems terete, sericeous to glabrate, bearing many small lenticels. Leaves alternate, subopposite, or sometimes opposite, varying on the same stem; lamina of larger leaves 6–10.3 cm long, 2–4 cm wide, elliptical or slightly ovate or obovate, cuneate at base, slightly to strongly revolute at margin, obtuse to rounded and often apiculate at apex, glabrous or very soon glabrate above, densely and persistently golden-, bronze-, or silvery-metallosericeous below with the hairs very short and tightly appressed, bearing a row of small glands below from base to apex, at or just within margin (these hidden when margin is revolute), the fine reticulum often prominent above;



FIG. 4. *Heteropterys alternifolia*. a) flowering branch, $\times 0.7$, with enlargement of adaxial leaf surface, $\times 2$; b) leaf base, abaxial view, $\times 3.5$; c) umbel of flower buds, $\times 3.5$; d) flower, anterior view, $\times 4.7$; e) posterior petal, $\times 4.7$; f) anthers, abaxial view (left) and adaxial view (right), $\times 17$; g) stigma, $\times 27$; h) samara, $\times 1.3$. Drawn by Karin Douthit, a-g from *Eupunino 330*, h from *Harley et al. 17807*.

petiole 4–13 mm long, sericeous to glabrate, most often biglandular near middle but sometimes bearing 3–4 glands and occasionally eglandular; stipules not found. Inflorescence sericeous, an axillary or terminal umbel of (3–) 4–6 flowers, or a raceme of umbels, the stalk of the umbel 6–20 mm long; bracts and bracteoles persistent, eglandular, triangular or ovate, mostly appressed, abaxially sericeous, adaxially glabrous; bracts 0.8–1.2 (–2) mm long; peduncle and pedicel slender, 0.4–0.8 mm in diameter; peduncle 3–6 mm long; bracteoles 0.5–0.9 mm long, borne at or occasionally below apex of peduncle; pedicel 5–7 mm long (–10 mm in fruit), usually longer than peduncle. Sepals 1–2 mm long beyond glands, 1–1.4 mm wide, triangular, pressed against filaments in anthesis, abaxially sericeous, adaxially glabrous, the anterior eglandular, the lateral 4 biglandular, the glands 1.8–3

mm long, elliptical, free at apex, the 2 glands adjacent to posterior petal sometimes long-decurrent. Petals yellow, glabrous, abaxially carinate, the lateral 4 reflexed, with claw 1–1.5 mm long and limb 3–4 mm long, 1.8–2.5 mm wide, denticulate; posterior petal erect to reflexed, with claw ca 2 mm long and limb 3–3.3 mm long, 2.2–2.7 mm wide, glandular-dentate on the proximal 1/2–2/3. Filaments 1.5–2 mm long, glabrous, 1/3–1/2 connate, straight or distally curved sideways or backwards; anthers 1–1.2 mm long, glabrous, alike, reflexed in anthesis. Ovary 1.5 mm high, sericeous; styles ca 1.3–1.5 mm long, glabrous, divergent, truncate or rounded dorsally at apex. Samara 35–50 mm long, sericeous, borne nearly erect; dorsal wing 30–42 mm long, 12–20 mm wide; nut subspheroidal, 5–8 mm in diameter, smooth-sided or bearing a single short lateral crest up to 1.5 mm wide.

ADDITIONAL SPECIMENS EXAMINED: **Brazil**. BAHIA: Mun. Maraú, BR-030, Km 11 Porto de Campinhos–Maraú, restinga, Feb fr, *Carvalho & Mattos Silva 213* (K, MICH); Mun. Salvador, dunas nos arredores da lagoa de Abaeté, May fr, *Carvalho et al. 692* (MICH, NY); 12 km S along road from Portal de Ilhéus just past Cururupe, 39°1' W, 14°54' S, disturbed restinga, sea level, Jan fr, *Harley et al. 17807* (MICH); Mun. Salvador, road from Itapua to Aeroporto at intersection with Avenida Luis Viana Filho, 12°55' S, 39°21' W, relict area of high dunes, near sea level, Feb fr, *Plowman & Brito 13952* (F, MICH); Mun. Santa Cruz de Cabrália, 6–7 km de Santa Cruz de Cabrália na antiga estrada para a Estação Ecológica do Pau-Brasil, restinga arbustiva, Dec fl, *Sant'Ana 139* (MICH).

Heteropterys alternifolia belongs to series *Metallophyllis* Nied., a group of closely related species that is most diverse in eastern Brazil, especially near the coast. All the other species of the series have strictly decussate leaves. *Heteropterys coleoptera* Adr. Juss., which is known from restingas from Piauí to Rio Grande do Sul, is similar to *H. alternifolia* but differs in its opposite leaves, non-revolute lamina, pedicels usually as long as or longer than the peduncles, shorter anthers, and well-developed lateral winglets on the smaller samara.

Heteropterys brachiata (L.) DC., Prodr. 1: 591. 1824. *Banisteria brachiata* L., Sp. Pl. 428. 1753.—TYPE: Herb. Cliffort. 169, *Banisteria* 2 (holotype: BM!).

Heteropterys tomentosa Hook. & Arn., Bot. Beechey Voy. 281. 1838, not *H. tomentosa* Adr. Juss. in St.-Hil., 1833. *Heteropterys beecheyana* Adr. Juss., Ann. Sci. Nat. Bot., Sér. 2, 13: 278. 1840. *Banisteria beecheyana* (Adr. Juss.) C. B. Rob. in Small, N. Amer. Fl. 25: 134. 1910.—TYPE: MEXICO. Guerrero: Acapulco (holotype: K!, annotated as *H. tomentosa* (by Hooker?)) and as *H. beecheyana* by Adr. Juss.; photo MICH, WRA neg. 81-6-15).

Heteropterys retusa J. D. Smith, Bot. Gaz. (Crawfordsville) 16: 2. 1891. *Banisteria retusa* (J. D. Smith) C. B. Rob. in Small, N. Amer. Fl. 25: 136. 1910.—TYPE: GUATEMALA. Escuintla, *Smith 2068* (isotype: K!).

Banisteria simulans Small, N. Amer. Fl. 25: 136. 1910. *Heteropterys simulans* (Small) Nied. in Engler, Pflanzenr. IV. 141: 380. 1928.—TYPE: MEXICO. San Luis Potosí: Los Caños, *Palmer 258* in 1902 (holotype: NY!; isotype: US!).

This species is extremely common, and correspondingly variable, throughout Mexico and south into South America. Niedenzu (1928) recognized both *H. beecheyana* and *H. brachiata*, assigning only four specimens from Venezuela to the latter. He was never able to study the type of Linnaeus's name, which I have now done. It clearly represents the species commonly called *Heteropterys beecheyana*, which must now be considered a synonym of *H. brachiata*. The following notes

were recorded for the Linnaean type: stems with many small lenticles; lamina roundish, rugose above, densely and persistently tomentose below with the veins and reticulum prominent; some leaves, especially the smaller ones, with 1-2 short-stalked peltate glands below at base of lamina; inflorescence a panicle of short few-flowered dense pseudoracemes or umbels; bracteoles borne at apex of peduncle; pedicel longer than peduncle; samara with several well-developed lateral winglets, not all parallel to the dorsal wing. The specimen is typical of the species as found in eastern Mexico, and may well have been collected by Houstoun in Veracruz.

Nieden zu (1928, p. 380) treated *Heteropterys simulans* under "Species incertae mihi invisae"; study of its type shows it to represent *H. brachiata*.

Heteropterys campestris Adr. Juss. in St.-Hil., Fl. Bras. Merid. 3: 33. 1833.—TYPE: BRAZIL. Minas Gerais: Tacaramby, Minas Novas, *Saint-Hilaire* Cat. B1 no. 1289 (lectotype, here designated: P!, the specimen labeled "TYPE," photo MICH, WRA neg. 81-25-18; isolectotypes: P!, photos MICH, WRA negs. 81-25-19 & 21).

Heteropterys discolor Adr. Juss. in St.-Hil., Fl. Bras. Merid. 3: 32. 1833.—TYPE: BRAZIL. Minas Gerais: Serra da Caraça, *Saint-Hilaire* (lectotype, here designated: P!, the specimen labeled "TYPE"; photos MICH, WRA negs. 81-26-3 & 4; isolectotypes: MICH!, P!).

Heteropterys confertiflora Adr. Juss. in St.-Hil., Fl. Bras. Merid. 3: 34. 1833.—TYPE: BRAZIL. Minas Gerais: Laranjeiras, S. João d'El Rey, *Saint-Hilaire* Cat. C1 no. 128 (lectotype, here designated: P!, the specimen labeled "TYPE," photos MICH, WRA negs. 81-25-32, 33 & 34; isolectotype: P!).

Heteropterys campestris is a shrubby species that is common and variable in the Planalto of central Brazil. Having studied their types, I see no basis for separating *H. discolor* from *H. campestris*. *Heteropterys confertiflora* is more difficult, being more divergent from *H. campestris* in its thinner lamina that is velutinous above and velutinous-tomentose below. However, there is no evidence that the plant was a vine and the petals are subequally carinate, none showing a really prominent winglet; those two characters indicate that this plant is probably not separable from *H. campestris*. Therefore I am treating *H. discolor* and *H. confertiflora* as synonyms. Nieden zu (1928) recognized both as good species, but he was never able to visit Paris and study the Saint-Hilaire collections there.

Heteropterys subhelicina Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 8: 60. 1926.—TYPE: BRAZIL. "Rio Branco" [=Roraima]: S. Marcos, *Ule 7808* (holotype: B†, Field Mus. neg. 12775; isotype: K!, photo MICH, WRA neg. 81-8-20).

Heteropterys catoptera W. R. Anderson, Mem. New York Bot. Gard. 32: 201. 1981.—TYPE: BRAZIL. Roraima: Caracará, *Pires et al. 14340* (holotype: IAN!; isotypes: MICH!, RB!).

Re-describing this species was an embarrassing mistake for which the only excuse I can offer is that I did not see an isotype of Nieden zu's name until after mine was published. In addition to the two types I have now seen several additional collections from Roraima (IAN, MICH) and several collections from the Rupununi of Guyana (K, MICH, US).

Hiraea bullata W. R. Anderson, sp. nov.—TYPE: BRAZIL. Bahia: Mun. Sta. Cruz de Cabrália, 4–6 km E of the Estação Ecológica do Pau-brasil (ca 17 km W of Porto Seguro), wet forest, Oct fl, *Mori et al. 10852* (holotype: CEPEC!; isotypes: K!, MICH!, NY!, RB).

Lamina foliorum majorum 5–8 cm longa, 3.5–6 cm lata, elliptica, basi rotundata, margine valde revoluta, apice late obtusa vel rotundata et mucronata, adaxialiter mox glabrata, abaxialiter pertinaciter velutina pilis T- et Y-formibus, coriacea, bullata costa et 5–7 nervis lateralibus supra profunde impressis et subtus prominentibus; petiolus 9–11 mm longus, stipulis 2–4 mm longis in dimidio distali instructus. Flores in umbellis 4-floris portati. Petala 4 lateralia lutea, eglandulosa; petalum posticum limbo rubro, margine toto circuito glanduloso-dentato.

Woody vine, the stems tomentose-velutinous with an overstory of \pm twisted T-shaped hairs and a longer-persisting understory of very short (ca 0.1 mm) Y-shaped hairs. Leaves decussate; lamina of larger leaves 5–8 cm long, 3.5–6 cm wide, elliptical or slightly ovate or obovate, rounded at base, strongly revolute at margin and eglandular or bearing a few small sessile glands near apex, broadly obtuse or rounded and mucronate at apex, soon glabrate above except subsericeous at base of midrib, densely and persistently hairy below with the midrib subsericeous and the rest velutinous with a mixture of long-stalked T- and Y-shaped hairs, coriaceous, the midrib and 5–7 pairs of lateral nerves, and to a lesser extent the scalariform tertiary veins, impressed above and prominent below, producing a bullate appearance; petiole 9–11 mm long, abaxially subsericeous and adaxially velutinous, bearing 2 protuberant glands at the apex or slightly beyond on the abaxial midrib; stipules 2–4 mm long, subulate, borne between middle and apex of petiole. Inflorescences axillary but most numerous distally to produce a terminal corymb, each inflorescence up to 3.5 cm long, single or 2 superposed in each axil, simple or ternate, the flowers borne in umbels of 4; bracts and bracteoles 0.7–1.7 mm long, triangular or ovate, abaxially sericeous; umbel without a glandular cushion between the bracteoles; pedicel 9–17 mm long, appressed-tomentose or subsericeous. Sepals ovate, obtuse or rounded at apex, appressed in anthesis, abaxially sericeous but distally glabrous, adaxially glabrous, the anterior eglandular, 2.5 mm long, 2 mm wide, the lateral 4 biglandular, 3 mm long, 2.5 mm wide, the glands 2–2.3 mm long. Petals glabrous, thick-textured, the lateral 4 yellow, spreading, crose or dentate but eglandular, with claw 1.5–2.5 mm long and limb 6–8 mm long and 6.5–8.5 mm wide, flat to concave, the posterior petal “red” (probably yellow in claw and red adaxially in limb), erect, glandular-dentate all around limb, with the thick claw 3–3.5 mm long and limb 5 mm long and wide, strongly concave. Filaments glabrous, connate at base, 2–3.5 mm long (longest opposite anterior sepal and shortest opposite posterior petal), straight or (especially opposite the lateral sepals) sigmoid; anthers 1–1.4 mm long, the connective dark red and yellow-glandular in the distal half. Ovary 1.4 mm high, densely dark-brown-hirsute; styles 3.5 mm long, glabrous or with a few hairs proximally, the anterior nearly straight and \pm erect, the posterior 2 strongly arcuate toward posterior petal, acute or short-hooked at apex with the hook only 0.1–0.2 mm long. Fruit unknown.

Hiraea bullata is named for its leaves, in which the deeply impressed veins give the laminar tissue between them a raised, puckered appearance. It is these small, rounded, coriaceous, revolute leaves that distinguish this species from the other species with the leaves velutinous below, such as *H. ternifolia* (H. B. K.)

Adr. Juss. and *H. wiedeanae* Adr. Juss. The red limb of the flag petal is also unusual in *Hiraea*. The species is known only from the type collection.

Hiraea christianeae W. R. Anderson, sp. nov.—TYPE: PERU. San Martín: San Martín, above Boca Toma del Shilcayo along Río Shilcayo N of Tarapoto, 06°30' S, 76°22' W, 400–450 m, tropical moist forest and gallery forest, May fr, *Knapp & Alcorn 7360* (holotype: MO!; isotype: MICH!).

Liana lignosa, ramis dense hirsutis pilis brunneis basifixis 4–6 mm longis patentissimis. Lamina foliorum majorum 14–21 cm longa, 8–11.5 cm lata, basi cordata, apice acuminata attenuataque, supra hirsuta, subtus velutina; petiolus 9–17 mm longus, hirsutus; stipulae ca 2 mm longae, infra medium petioli portatae. Umbella axillaris multiflora, in pedunculo hirsuto 1.5–2.5 cm longo elevata; pedicellus 15–20 mm longus, tomentosus. Styli arcuati apice dorsaliter apiculati. Samara alis lateralibus inter se liberis, 20–28 mm latis, 33–43 mm altis.

Woody vine; stems densely and persistently hirsute with stiff, dark brown, basifixed hairs 4–6 mm long spreading at 90°, many becoming broken or abraded on older stems. Lamina of larger leaves 14–21 cm long, 8–11.5 cm wide, somewhat obovate (i.e., widest above middle), cordate at base, acuminate at apex with an attenuate tip 5–17 mm long, bearing several small, short-peltate glands distributed evenly along the slightly revolute margin, densely and persistently hairy on both sides, the hairs of the adaxial surface basifixed, erect to inclined, mostly 3–4 mm long, like stem hairs but not as stout or dark, the abaxial margin with similar basifixed hairs, most of the abaxial surface velutinous with erect white T- or Y-shaped hairs, the abaxial midrib bearing a mixture of the two hair types, the principal lateral veins 8–10 on each side, interconnected by scalariform tertiary veins; petiole 9–17 mm long, densely hirsute like stems and with an underlayer of short white bifurcate hairs, biglandular between middle and apex with the small glands hidden among hairs; stipules ca 2 mm long, flattened-subulate, borne well above base of petiole but mostly below middle, hidden among hairs. Inflorescence an axillary umbel of many flowers (at least 10, probably 15–25 or perhaps more), raised on a hirsute stalk 1.5–2.5 cm long, the bracts and bracteoles 1–1.5 mm long, abaxially densely hirsute; pedicel (in fruit) 15–20 mm long, tomentose with mostly T-shaped hairs with short stalk and long crosspiece. Sepals abaxially densely hirsute, adaxially glabrous, the anterior eglandular, the lateral 4 biglandular. Petals and stamens not seen. Styles (in fruit) strongly bowed and with a short but definite dorsal hook at apex. Samara hirsute on nut, hirsute to velutinous on wings with hairs mostly sub-basifixed and erect to inclined, the lateral wings distinct, flabellate, 20–28 mm wide, 33–43 mm high, sinuate or coarsely toothed; dorsal winglet 1–1.5 mm wide.

I am happy to name this most distinctive plant in honor of Christiane Anderson, astute student of *Stigmaphyllon*. The long spreading basifixed hairs of the stem and leaves are quite unlike anything I have seen in *Hiraea*, and indeed, most unusual for the family. The multiflowered umbels and curved apiculate styles place the species in section *Polyactinia* Nied. It is known only from the type, which bears mature fruits.

Hiraea haberi W. R. Anderson, sp. nov.—TYPE: COSTA RICA. Alajuela: Reserva Monteverde, Río Peñas Blancas, 10°20' N, 84°43' W, 820 m, Jun fl, *Haber 7247* (holotype: MO!).

Liana gracilis ramis usque ad 4 mm diametro. Lamina foliorum majorum 11–15.5 cm longa, 4.2–6 cm lata, adaxialiter mox glabrata, abaxialiter sericea pilis sessilibus vel subsessilibus, rectis, appressis. Umbella ca 20-flora, in pedunculo 8–22 mm longo, 0.5–3 mm sub umbella articulo, portata. Petala lateralia reflexa, subintegra vel denticulata; petalum posticum erectum, fimbriatum. Stylus anticus ± rectus et apice brevi-uncinatus; 2 styli postici arcuati et apice brevissime apiculati.

Woody vine, the stems sericeous, up to 4 mm in diameter, the epidermis split in age but not exfoliating in broad strips. Lamina of larger leaves 11–15.5 cm long, 4.2–6 cm wide, elliptical, chartaceous, cuneate to truncate at base, acuminate at apex, initially subsericeous but soon quite glabrate above, sericeous to eventually glabrescent below with the sessile or subsessile, ± straight, appressed hairs longest and most persistent on the midrib, eglandular or bearing a pair of small raised glands at base and 0–several small marginal glands, the 7–10 lateral veins prominent below and connected by very numerous strongly parallel scalariform cross-veins; petiole 12–16 mm long, 1–1.5 mm in diameter, sericeous, eglandular or biglandular between middle and apex; stipules 0.5–1.6 mm long, subulate, borne on petiole 1.5–5 mm above base. Inflorescence axillary, an umbel of ca 20 flowers borne on a sericeous stalk 8–22 mm long, 0.7–1.2 mm in diameter, jointed 0.5–3 mm below umbel and bearing a pair of caducous much-reduced leaves or bracts at the joint; floriferous bracts and bracteoles 0.4–0.9 mm long, ovate, abaxially sericeous, adaxially glabrous, eglandular, persistent; pedicel 12–20 mm long, 0.7 mm in diameter, sericeous. Sepals 2–2.2 mm long, 1–1.6 mm wide, triangular, appressed in anthesis, abaxially sericeous, adaxially glabrous, all eglandular or the lateral 4 bearing 6–8 elliptical glands 0.9–1.6 mm long. Petals yellow, glabrous, thick-textured, the lateral strongly reflexed in anthesis, the claw 1.5 mm long and the limb ca 3 mm long, 3.5 mm wide, concave and revolute, denticulate or subentire; posterior petal erect, the claw 1.6–2.4 mm long, the limb 2.5–3 mm long and wide, flat, somewhat crumpled, long-fimbriate distally or all around the margin with the fimbriae often glandular-thickened distally. Filaments 2–2.8 mm long opposite sepals, 1.7–2.2 mm long opposite petals, glabrous, straight or sigmoid, connate at base; anthers 0.6–1.1 mm long, glabrous, the locules borne laterally on the dark red orbicular connective. Ovary 1 mm high, densely hirsute; styles glabrous, ca 2–2.3 mm long, the anterior ± straight and erect or leaning outward and bearing a dorsal hook ca 0.3 mm long at apex; 2 posterior styles strongly arcuate, bending from base toward posterior petal and then curving inward, dorsally apiculate at apex with the acute projection up to 0.1 mm long. Samara with lateral wings distinct at base and apex, trapezoidal, 20–22 mm wide, 27–32 mm high, sinuate or coarsely toothed, membranous, loosely sericeous with hairs spreading; dorsal wing ca 1.5 mm wide, ca 4.5 mm high, subentire or coarsely toothed; nut ca 4.5 mm in diameter, loosely sericeous.

ADDITIONAL SPECIMENS EXAMINED. **Costa Rica.** ALAJUELA: Reserva Biológica Monteverde, Río Peñas Blancas, 10°20' N, 84°43' W, 800 m, Apr fl. *Haber 6983* (MICH); Upala, Colonia Libertad 2 km al NE de la Escuela, 300–400 m, May fr. *Herrera 1939* (MICH).—SAN JOSE: Tarrazú, faldas del Cerro Nara, ca. Esquipulas, límite Quepos (Puntarenas) y Tarrazú, 9°29' N, 84°03' W, 350–400 m, Jul fr. *Gómez-Laurito 11583* (MO).

This species is named in honor of William Haber, whose tireless exploration of the forests in the vicinity of Monteverde has produced a rich harvest of botanical novelties. It belongs in section *Polyactinia* Nied., which is distinguished by having umbels of more than six flowers and curved styles that are dorsally apiculate at

the apex. Cuatrecasas (1958) treated four species in that section; I have compared *H. haberi* to the types of all those species, and it is clearly none of them. There seem to be at least three species of the section in Costa Rica, which can be separated by the following key.

1. Lamina velutinous below (except for midrib and lateral veins), the hairs stalked and Y- or T-shaped. *H. smilacina* Standley¹.
1. Lamina sericeous or subsericeous below, with most hairs sessile or subsessile and \pm straight and appressed.
 2. Slender vine with stems up to 4 mm in diameter, the epidermis exfoliating in age but not exfoliating in broad strips; stipules up to 1.6 mm long; lamina up to 15.5 cm long and 6 cm wide; inflorescence stalk 8–22 mm long, jointed 0.5–3 mm below umbel. *H. haberi* W. R. Anderson.
 2. Stout liana with stems over 6 mm in diameter, the epidermis exfoliating in long, broad strips; stipules ca 4–7 mm long; lamina of larger leaves 15–45 cm long, 9–22 cm wide; inflorescence stalk 40–80 mm long, jointed 10–20 mm below umbel. *H. guapecita* Cuatrecasas.

Hiraea quapara (Aubl.) Sprague, J. Bot. 62: 22. 1924. *Banisteria quapara* Aubl., Hist. Pl. Guiane 1: 464, pl. 186. 1775. *Hiraea multiradiata* ADR. Juss., Ann. Sci. Nat. Bot., Sér. 2, 13: 257. 1840, nom. superfl.—TYPE: FRENCH GUIANA. Aublet (lectotype, here designated: BM! (the three pieces with leaves and flowers but excluding the fruits), photos MICH, WRA negs. 81-2-25 & 26).

This is another species of Niedenzu's section *Polyactinia*. Jussieu rejected Aublet's name, probably because the type, which he had studied, included an admixture of three sapindaceous samaras, but that is not admissible under modern rules of nomenclature; it is, however, necessary to lectotypify Aublet's name so as to exclude the non-malpighiaceus element.

Field Mus. neg. 21341 shows two specimens of this species at C from the Vahl Herbarium, said to have come from von Rohr. In addition to pieces with leaves and flowers the photograph shows two loose sapindaceous samaras just like those with Aublet's type in BM. The coincidence is surely most unlikely, and raises the possibility that the specimen at C is a duplicate of the lectotype.

This name has been applied by recent authors (e.g., Niedenzu, 1928, and Cuatrecasas, 1958) both to plants of French Guiana and to a species of Colombia and Central America. This is understandable when only flowering material is studied, because leaves and flowers from the two areas are very similar. However, when one considers the fruits it immediately becomes evident that two different species are involved. The plants of Central America and Colombia, for which the oldest name appears to be *Hiraea smilacina* Standley, have fruits typical of the genus, with well-developed membranous flabellate lateral wings, producing a samara that looks like a butterfly. True *H. quapara* has weird fruits that are unique in the genus. The whole fruit is about 10–15 mm in diameter. The lateral wings are about 5 mm wide, thickened and corrugated, each with about 6 thick ribs on the lower side radiating from the nut. The dorsal wing is about 3 mm wide, rounded and thick, and extends almost the length of the nut. Between the lateral and the dorsal wings are a series of thick, irregular winglets and outgrowths

¹Cuatrecasas (1958) called this *H. quapara* (Aubl.) Sprague, a separable species of the Guianas; see discussion under that name. *Hiraea smilacina* is a variable species that may yet yield to taxonomic subdivision.

oriented both parallel to the main wings and at right angles to them. The total effect is of a small, globose, burrlike fruit with much surface area, obviously adapted for dispersal by water, not by wind. *Hiraea quapara* has been collected twice in fruit, once in 1877 (*Mélinon 384*, P!) and again in 1976 (*Sastre 4692*, MICH!, P!).

Hiraea quapara is collected with some frequency in French Guiana, and in 1979 it was found for the first time in nearby Amapá, Brazil (*Austin et al. 7175*, MICH!, NY!). I have seen it from no other countries.

Lophopterys peruviana W. R. Anderson, sp. nov.—TYPE: PERU. Amazonas: Alrededor de yucui entsa 6 horas de pongo del Camino de Kusu, monte, 360–600 m, Mar fr, *Kayap 569* (holotype: MICH!; isotype: F!). Fig. 5.

Liana lignosa, ramis arcte sericeis pilis 0.1–0.3 mm longis. Lamina foliorum majorum 15–22.5 cm longa, 8.5–11 cm lata, elliptica, venis tertiariis scalariformibus; petiolus 16–21 mm longus, plerumque biglandulifer prope apicem. Bractee bracteolaeque persistentes; bractee 1.5–3 mm longae; pedunculus 0.5–2 mm long; bracteolae 0.8–1 mm longae; pedicellus 4–7 mm longus. Antherae 1.3–1.5 mm longae, inter loculos sparsim sericeae. Styli ca 1.5 mm longi, sericeae. Samara nucis 9–10 mm diametro, alis lateralibus 45–50 mm longis, 10–15 mm latis, ala dorsali 10–20 mm alta, 20–30 mm longa.

Woody vine climbing to 25 m; stems ridged, densely and persistently sericeous, the hairs only 0.1–0.3 mm long, so short and tightly appressed as to be not immediately evident. Leaves opposite or subopposite, or occasionally whorled (at least in the inflorescence); lamina of larger leaves 15–22.5 cm long, 8.5–11 cm wide, elliptical, rounded or cuneate at base, abruptly acuminate at apex, sericeous to very soon glabrate above, densely and persistently silvery-sericeous below with very short and tightly appressed hairs, eglandular or occasionally biglandular on margin at base, the 7–9 pairs of lateral veins connected by many very fine scalariform crossveins oriented at right angles to midrib, the reticulum prominulous above; petiole 16–21 mm long, persistently sericeous, usually bearing a pair of large glands near apex, sometimes bearing a second more proximal pair as well, occasionally apparently eglandular; stipules not found. Inflorescence densely and persistently golden- or brown-sericeous, paniculate, the flowers ultimately borne in pseudoracemes 6–12.5 cm long and containing 15–60 flowers; bracts and bracteoles persistent, the bracts 1.5–3 mm long, triangular, appressed or spreading at apex; peduncle 0.5–2 mm long; bracteoles like bracts but only 0.8–1 mm long; pedicel 4–7 mm long, 1.5 mm in diameter at apex, straight or curved upward in flower, sericeous like the inflorescence. Sepals ca 1 mm long beyond glands, broadly obtuse to rounded, abaxially densely sericeous to glabrescent, the anterior eglandular, the lateral 4 each bearing 1 very large circular gland 2–3.5 mm in diameter. Petals yellow, glabrous; open flowers with intact petals not seen; posterior petal ca 6 mm long, obovate, the limb long-decurrent on the claw, toothed with the proximal teeth glandular. Filaments 1.5–2 mm long, glabrous, up to 1/3 connate; anthers 1.3–1.5 mm long, sparsely sericeous between locules. Ovary 1 mm high, densely sericeous; styles ca 1.5 mm long, the anterior slightly shorter than the posterior 2, all divergent and sericeous their whole length. Samara with the nut spheroidal, 9–10 mm in diameter, sericeous or appressed-tomentose; lateral wings 45–50 mm long, 10–15 mm wide, linear or narrowly elliptical, sericeous; dorsal wing trapezoidal with the upper margin entire or slightly sinuous, 10–20 mm high,



FIG. 5. *Lophopterys peruviana*. a) fruiting branch, $\times 0.5$; b) enlargement of adaxial surface of lamina to show scalariform crossveins, $\times 2.5$; c) samaras, from below (left) and from the side (right), $\times 0.75$; d) embryos, whole (right) and in longitudinal section (left), $\times 3$; e) flower bud, $\times 5$; f) flower, side view, lateral petals and 3 anthers removed, $\times 4$; g) anther, abaxial view, $\times 15$; h) gynoecium, anterior style in center, $\times 10$; i) style tip, adaxial view, $\times 15$. Drawn by Karin Douthit, a-d from *Kayap* 569, e-i from *Klug* 654.

20–30 mm long, sericeous. Seed globose, the embryo with one cotyledon longer and folded over the other distally.

ADDITIONAL SPECIMENS EXAMINED: **Peru**. LORETO: Mishuyacu, near Iquitos, forest, 100 m, Dec fl, *Klug 654* (F. NY, US); Maynas, Iquitos, Km 44 carretera Iquitos–Nauta, bosque primario, 04°10' S, 73°20' W, 150 m, Dec fr. *Vásquez & Jaramillo 11420* (MICH).

This is one of two species of *Lophopterys* known from Peru; the other is *L. inpana* W. R. Anderson, which has been collected recently in the region of Pucallpa. *Lophopterys peruviana* is distinguished from *L. inpana* by its tighter stem vesture, mostly larger (especially wider) laminas with scalariform crossveins, larger petiole glands, shorter peduncles, small, more or less appressed bracts and bracteoles, sericeous anthers and styles, and larger fruits. The one flowering collection (*Klug 654*) differs from the other two collections in a number of details, and may represent a separable species, but such a determination will require better specimens than are available to me now.

Mascagnia chasei W. R. Anderson, sp. nov.—TYPE: BRAZIL, Bahia: Mun. Maracás, 8–18 km S of Maracás by old highway to Jequié, thicket, 900–1000 m, Feb fl, *dos Santos et al. 3480* (holotype: CEPEC!; isotypes: MICH!, NY!). Fig. 6.

Liana lignosa. Lamina foliorum majorum 3–7 cm longa, (1.2–) 1.5–3.5 cm lata, elliptica, supra mox glabrata, subtus pertinaciter sericea; petiolus 4–6 mm longus, eglandulosus. Pseudoracemus axillaris 1–3 cm longus, ex 4–10 floribus constans. Petala lutea, abaxialiter sericea, limbo toto circuitu fimbriato. Filamenta 1.3–2 mm longa, abaxialiter sericea; antherae 0.5–0.7 mm longae, glabrae. Styli 1.5 mm longi, apice dorsaliter brevi-apiculati. Samara alis lateralibus inter se liberis, 8–10 mm latis, 10–18 mm altis, crista dorsali nulla.

Woody vine with the slender stems initially sericeous, soon glabrate. Lamina of larger leaves 3–7 cm long, (1.2–) 1.5–3.5 cm wide, elliptical, cuneate at base, flat or slightly revolute at margin, mostly acute or slightly acuminate at apex (to obtuse or abruptly rounded), initially sericeous above but soon glabrate, densely and persistently sericeous below (very rarely irregularly glabrescent in age), bearing (0–) 1–3 small glands on proximal third of margin; petiole 4–6 mm long, sericeous to glabrate, eglandular; stipules ca 0.3 mm long, triangular, interpetiolar. Inflorescence an axillary pseudoraceme 1–3 cm long, shorter than the subtending leaf, sericeous throughout, comprising 4–10 mostly decussate flowers; bracts 0.7–1.5 mm long, narrowly triangular, appressed, eglandular; peduncle 0.7–2.5 mm long; bracteoles 0.5–0.8 mm long, triangular, appressed, eglandular, borne at apex of peduncle; pedicel 3.5–5 mm long. Sepals leaving the outer petal exposed during enlargement of bud, ca 2 mm long, appressed in anthesis, rounded at apex, abaxially densely sericeous, adaxially glabrous, the anterior eglandular, the lateral 4 biglandular with the glands ca 1 mm long. Petals yellow, very densely golden-sericeous abaxially on claw and limb except near margin, fimbriate or glandular-fimbriate all around margin of limb, the claw 1.2–1.7 mm long, the limb 2.5–3.7 mm long, 2.3–3 mm wide, the lateral 4 reflexed and the posterior erect, the anterior-lateral pair with larger limbs than the posterior 3. Filaments 1.3–2 mm long, abaxially sericeous, adaxially glabrous, 1/4–1/2 connate; anthers 0.5–0.7 mm long, glabrous. Ovary sericeous; styles 1.5 mm long, subequal, sericeous at base, straight and erect to divergent, laterally flattened and dorsally short-apiculate at apex. Samara sericeous, with 2 discrete flabellate lateral wings, each wing 8–10 mm

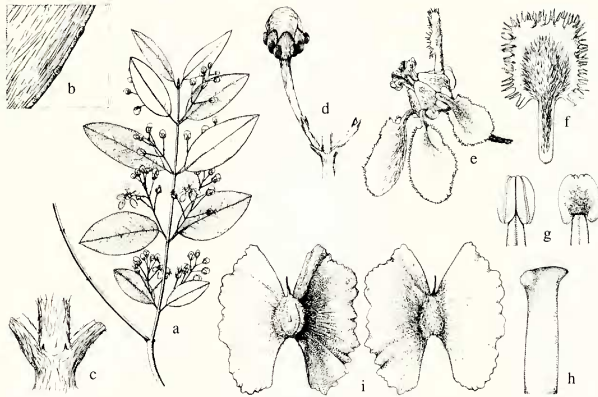


FIG. 6. *Mascagnia chasei*. a) flowering branch, $\times 0.5$; b) leaf margin, abaxial view, $\times 10$; c) node with stipules, $\times 5$; d) flower bud, $\times 2.5$; e) flower, $\times 3$; f) posterior petal, abaxial view, $\times 6$; g) anthers, adaxial view (left) and abaxial view (right), $\times 15$; h) stigma, $\times 25$; i) samaras, adaxial view (left) and abaxial view (right), $\times 2$. Drawn by Karin Douthit, a–h from *dos Santos et al.* 3480, i from *Mori & King* 12202.

wide (measured from nut to farthest margin), 10–18 mm high (measured at right angles to width), crose or coarsely dentate; dorsal crest none.

ADDITIONAL SPECIMENS EXAMINED. **Brazil.** BAHIA: Sandy caatinga 21 km W of Brejão da Caatinga on road to Delfino, 600 m, Mar fl, *Anderson 11744* (K, MBM, MICH, NY); Mun. Andaraí, S of Andaraí on road to Mucugê, Serra do Sincorá, 480 m, Feb fl, *Anderson 13710* (MICH); Barreiras, Dec fl, *Black 54-17849* (IAN) & *54-17958* (IAN); Mun. Boninal, estrada Boninal-Piata Km 4, caatinga, 1100 m, Jul fr, *Coradin et al. 6546* (K); caatinga 9 km NE of Planalto along highway BR-116, 930 m, Mar fr, *Davidse et al. 11632* (MICH); 23 km E of Morro do Chapéu on road to Mundo Novo, 1000 m, Feb fr, *Irwin et al. 30734* (MICH, NY); Mun. Jequié, 4 km E of Jequié, caatinga, 600 m, Jul fr, *Mori & King 12202* (MICH, US).

Mascagnia chasei takes its epithet from Mark W. Chase, my collaborator in research on generic relationships in the Malpighiaceae. It is closely related to *M. chlorocarpa* (Adr. Juss.) Griseb.; the principal difference between them lies in their leaves, which are densely and persistently sericeous below in *M. chasei*, and soon quite glabrate in *M. chlorocarpa*. The leaves also tend to be longer and more attenuate at the apex in *M. chlorocarpa*. Most collections of *M. chlorocarpa* come from south and west of Bahia (Rio de Janeiro, Minas Gerais, São Paulo (not seen, cited by Niedenzu, 1928), Goiás, Paraguay, and Bolivia). However, I have seen one collection of *M. chlorocarpa* from Morro do Chapéu, Bahia (*Bautista 352*, K), very near the source of one of the paratypes cited above.

Mascagnia chlorocarpa (Adr. Juss.) Griseb. in Mart., *Fl. Bras.* 12(1): 93. 1858. *Hiraea chlorocarpa* Adr. Juss., *Ann. Sci. Nat. Bot.*, Sér. 2, 13: 259. 1840.—**TYPE:** BRAZIL. RIO DE JANEIRO: sylvis arenosis juxta Bertinga da Praia da Pedra, *Vauthier* (lectotype, here designated: P!, the specimen photographed

in Field Mus. neg. 35628; isolectotypes: G (the fruiting specimen in Field Mus. neg. 24286), K!, P!).

Heladena hassleriana Nied. in Chodat & Hassler, Bull. Herb. Boissier, Sér. 2, 7: 294. 1907.—TYPE: PARAGUAY. Río Apa, Hassler 7837 (holotype: B†, Field Mus. neg. 12830; isotypes: BM!, K!, MICH!, MO!, P!)

Nieden zu maintained *Heladena hassleriana* in *Das Pflanzenreich* (1928), on the basis of the type, which was the only collection to which he ever ascribed that name. He knew it was unlike other species of *Heladena*, so he erected a section for it, which he called *Hassleria*. Study of Hassler 7837 convinces me that it represents a flowering specimen of *Mascagnia chlorocarpa*, and in recent years the species has been collected in Paraguay with the diagnostic fruits (Gentry et al. 59293, MICH).

Mascagnia cordifolia (Adr. Juss. in St.-Hil.) Griseb. in Mart., Fl. Bras. 12(1): 95. 1858. *Hiraea cordifolia* Adr. Juss. in St.-Hil., Fl. Bras. Merid. 3: 19, pl. 164. 1833.—TYPE: BRAZIL. Near "Curumatahy," St.-Hilaire (lectotype, here designated: P!, the specimen annotated "TYPE," photos MICH, WRA negs. 81-21-17 & 18; isolectotypes: P!, 2 specimens, Field Mus. neg. 35629).

Mascagnia rubra Griseb. in Mart., Fl. Bras. 12(1): 90. 1858.—TYPE: BRAZIL. Goiás: near Natividade, Gardner 3067 (isotype: K!).

Nieden zu (1928, p. 123) did not see the type of *M. rubra* and had to leave it under "Species incertae." It proves to be a synonym of *M. cordifolia*, a common and widespread species; noteworthy features of Gardner 3067 that mark it as this species are: lamina velutinous on both sides; petiole biglandular at base; inflorescence clongate; some bracteoles bearing one large abaxial gland; petals distinctly alate.

Mascagnia divaricata (H. B. K.) Nied. in Engler & Prantl, Nat. Pflanzenfam. III, 4: 55. 1890. *Hiraea divaricata* H. B. K., Nov. Gen. Sp. 5 [quarto]: 169. 1822.—TYPE: VENEZUELA. Zulia: Dúto. Colón, entre Casigua El Cubo y km 8 de la vía rumbo a Palmira, Apr fl/fr, Bunting 7371 (neotype, here designated: MICH!).

Hiraea oblongifolia DC., Prodr. 1: 585. 1824. *Mascagnia oblongifolia* (DC.) Nied. in Engler & Prantl, Nat. Pflanzenfam. III, 4: 55. 1890.—TYPE: COLOMBIA. Magdalena: Santa Marta, Bertero (holotype: G-DC; isotypes: MO!, P!).

Hiraea elegans Adr. Juss., Ann. Sci. Nat. Bot., Sér. 2, 13: 261. 1840. *Mascagnia elegans* (Adr. Juss.) Griseb. in Mart., Fl. Bras. 12(1): 95. 1858.—TYPE: PERU. Maynas: Poeppig 2233 (lectotype, here designated: P!, the sheet photographed in Field Mus. neg. 35630; isolectotype: P!).

Hiraea pulcherrima Morong, Ann. New York Acad. Sci. 7: 67. 1892. *Mascagnia pulcherrima* (Morong) Skottsbo., Kongl. Svenska Vetenskapsakad. Handl. 35(6): 4. 1901.—TYPE: PARAGUAY. Asunción, Morong 626 (lectotype, here designated: MICH!; isolectotype: K!).

Mascagnia ixiamensis Rusby, Mem. New York Bot. Gard. 7: 271. 1927.—TYPE: BOLIVIA. Ixiamas, Cárdenas 1999 (holotype: NY?; isotypes: K!, MICH!).

This is the species that has long been treated under the name *Mascagnia ovatifolia* (H. B. K.) Griseb., e.g., by Nieden zu, 1928, and Cuatrecasas, 1958. It is

widespread, occurring from Argentina to Nicaragua, and common throughout much of its range. As I explain below under *M. ovatifolia*, that name must be taken up for the plant long known as *M. nervosa*, and the oldest available epithet for this species is *divaricata*. The type of *Hiraea divaricata* was a collection made by Humboldt & Bonpland near Cumaná, Venezuela. The holotype is missing from P-HBK, and the isotype formerly at B (Field Mus. neg. 12694) no longer exists. As there appear to be no other isotypes, it seems necessary to designate a neotype. The collection I have chosen is from the lowlands of northern Venezuela and shows all of the characters that distinguish this species. The following couplet summarizes the diagnostic differences between *M. divaricata* and *M. ovatifolia*:

1. Dried lamina smooth above, the reticulum not raised and hardly visible; petiole usually bearing 2-4 glands near middle, sometimes eglandular; anthers pilose; samara usually about as high as wide, sometimes a little higher, sometimes a little wider. *M. divaricata*.
1. Dried lamina with the fine reticulum prominent above; petiole eglandular; anthers glabrous; samara usually distinctly wider than high. *M. ovatifolia*.

The smoothness of the lamina shows clearly in the photograph of the Berlin isotype of *H. divaricata*, and was also remarked by Kunth; in his protologues he described the lamina of *H. divaricata* as "obsolete reticulato-venosa" and that of *H. ovatifolia* as "reticulato-venoso." He also described the petioles of *H. divaricata* as "3-7-glandulosus" and those of *H. ovatifolia* as "eglandulosus," and he noted that the anthers of *H. divaricata* were "puberulae"; he did not see the anthers of *H. ovatifolia*.

Mascagnia lasiandra (Adr. Juss.) Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosiarium Braunsberg 4: 5. 1912. *Hiraea lasiandra* Adr. Juss., Ann. Sci. Nat. Bot., Sér. 2, 13: 259. 1840.—TYPE: BRAZIL. "Martii Herb. Florae Bras." (holotype: P!).

Mascagnia nitens (S. Moore) Nied. in Engler, Pflanzenr. IV. 141: 123. 1928. *Hiraea nitens* S. Moore, Trans. Linn. Soc. London, Ser. 2, 4: 328. 1895.—TYPE: BRAZIL. Mato Grosso: Moore 74 (holotype: BM!).

Nieden zu never saw Moore's type, so, although he could tell from the original description that *Hiraea nitens* belonged in *Mascagnia*, he had to place *M. nitens* under "Species incertae mihi non visae" in his 1928 monograph. Study of Moore's type in BM shows it to be conspecific with *M. lasiandra*; aside from general vegetative similarities, Moore's specimen shares with other collections of the species the characteristic short, dense, few-flowered raceme and the hairy filaments and sericeous anthers.

Mascagnia leonii W. R. Anderson, sp. nov.—TYPE: BRAZIL. Minas Gerais: Mun. Carangola, Fazenda Santa Rita, mata de encosta, 20°46' S, 42°02' W, 600 m, Aug fl, *Leoni s.n.* (holotype: GFJP 1213!; isotype: MICH!).

Liana lignosa. Lamina foliorum majorum 12-19 cm longa, 6-11.3 cm lata, mox glabrata; petiolus 15-30 mm longus; stipulae 3.5-6 mm longae, anguste triangulares vel subulatae. Bracteeae 2-3.5 mm longae, eglandulosae; pedunculus 6-8 mm longus; bracteolae 1.2-1.7 mm longae, eglandulosae vel glandulam parvam gerentes; pedicellus 6.5-11 mm longus. Petala lutea, glabra, 4 lateralia abaxialiter carinata. Styli apice dorsaliter rotundati. Samara 21-26 mm alta, 19-25 mm lata,

ala laterali basi continua, apice paulo emarginata, crista dorsali 3–4 mm lata.

Woody vine; stems initially loosely appressed-tomentose, soon glabrescent. Lamina of larger leaves 12–19 cm long, 6–11.3 cm wide, ovate, rounded at base, reddish at margin, obtuse or abruptly acuminate at apex, initially appressed-tomentose above on midrib but soon glabrate, initially appressed-tomentose below on midrib and sparsely subsericeous on lamina with hairs ca 0.8 mm long but quite glabrate at maturity, bearing 0–3 impressed glands below near base on each side of midrib and 1–3 similar glands distally between midrib and margin, the lateral veins prominent below; petiole 15–30 mm long, tomentose to glabrate, eglandular; stipules 3.5–6 mm long, narrowly triangular or subulate, tomentose to glabrate, borne on stem beside petiole, persistent. Inflorescence an axillary panicle comprising dense pseudoracemes 2–5 cm long, borne singly or in pairs axillary to reduced leaves, each pseudoraceme containing 10–30 or more flowers; whole inflorescence tomentose or subsericeous, the pedicel glabrescent in fruit; bracts 2–3.5 mm long, narrowly lanceolate, eglandular; peduncle 6–8 mm long; bracteoles 1.2–1.7 mm long, eglandular or one or both bearing a small gland abaxially at base, borne at middle of peduncle or above but always well below apex; pedicel 6.5–9 mm long in flower, up to 11 mm long in fruit. Sepals appressed in anthesis, exceeding the glands by ca 1 mm, rounded at apex, abaxially loosely sericeous, adaxially glabrous, the anterior eglandular, the lateral 4 biglandular with the glands 2–2.5 mm long and slightly reflexed at apex. Petals yellow, glabrous, exposed during enlargement of the bud, the lateral 4 with the limb 4.5–5.5 mm long, ca 3 mm wide, oblong or almost rectangular, abaxially carinate or slightly winged, the claw 1–1.5 mm long; posterior petal with a smaller, not or hardly carinate limb and a thicker claw. Filaments 1.6–2.2 mm long, glabrous, nearly straight, connate only at very base; anthers 1.1–1.5 mm long, glabrous. Ovary densely appressed-hirsute; styles ca 2.5 mm long, subequal, divergent, especially the anterior, all 3 dorsally rounded at the apex. Samara 21–26 mm high, 19–25 mm wide, very broadly ovate to orbicular, very sparsely and loosely sericeous, the lateral wing membranous, continuous at base and apex, often shallowly notched at apex and slightly sinuate at margin; nut inserted slightly above center of wing; central dorsal winglet 3–4 mm wide; intermediate winglets none.

ADDITIONAL SPECIMEN EXAMINED: **Brazil**, MINAS GERAIS: steep rocky lower slopes of Pico de Itacolomi, 3 km S of Ouro Preto, 1650 m, Feb fr, *Irwin et al.* 29625 (MICH).

The epithet of this species honors Lucio de Souza Leoni, collector of the type and tireless curator of the Herbario "Guido Pabst" in Carangola, Minas Gerais. *Mascagnia leonii* is referable to the complex of *M. sepium* (Adr. Juss.) Griseb.; it is immediately separable from all other species in that complex by its extraordinarily long stipules, as well as by its large glabrate leaves, long peduncles, and carinate lateral petals. The type and paratype are somewhat different in their vesture, which is loose in the type, in their pseudoracemes, which are relatively short in the paratype, and in other details, but they share the large leaves and stipules. The whole complex needs thorough revision.

Mascagnia ovatifolia (H. B. K.) Griseb., Fl. Brit. W.I. 121, 1860. *Hiraea ovatifolia* H. B. K., Nov. Gen. Sp. 5 [quarto]: 170, 1822.—TYPE: VENEZUELA, Sucre: Cumaná, *Humboldt & Bonpland* (holotype: P-HBK!, photos MICH, WRA negs. 81-11-14, 15 & 16).

Mascagnia nervosa Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 3: 12. 1908.—TYPE: COLOMBIA. Magdalena: Santa Marta, *H. Smith 344* (lectotype, here designated: US!; isolectotypes: MICH!, NY).

This species is a woody vine bearing pink or lilac flowers; it is common in the northern coastal states of Venezuela and also occurs in Trinidad, Colombia, and Panama. In the same area of northern Venezuela occurs a similar species with a much broader range; Humboldt and Bonpland collected them both near Cumaná. Recent students of the Malpighiaceae (e.g., Niedenzu, 1928, and Cuatrecasas, 1958) have called those two species *M. ovatifolia* and *M. nervosa*. When I studied the Humboldt & Bonpland collections at Paris in 1981, I found that the type of *Hiraea ovatifolia* actually represents the species that has been called *M. nervosa*, so the epithet *ovatifolia* has to go to that species and the former "*M. ovatifolia*" has to have another name, which is *M. divaricata*; for further discussion, see above under that name.

Cuatrecasas (1958, p. 367) lectotypified the name *Mascagnia nervosa* by citing as type the syntype *Otto 904* in B, but that specimen no longer exists, so it seems best to designate a new lectotype from among the duplicates of another syntype.

Mascagnia parvifolia (Adr. Juss.) Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 4: 5. 1912. *Malpighia parvifolia* Adr. Juss., Arch. Mus. Hist. Nat. 3: 268. 1843.—TYPE: MEXICO. Oaxaca: *Galeotti 4327* (holotype: P!; isotypes: G, K!, P-JU!).

Mascagnia seleriana Loesener, Bull. Herb. Boissier 2: 543. 1894.—TYPE: MEXICO. Oaxaca: Mitle, *Seler & Seler 120* (holotype: B†, photo MICH!).

Hiraea parviflora Rose, Contr. U.S. Natl. Herb. 5: 139. 1897. *Mascagnia pringlei* Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 3: 9. 1908, nom. superfl.—TYPE: MEXICO. Puebla: Tehuacán, *Pringle 6274* (holotype of *parviflora*: US; holotype of *pringlei*: B†; isotypes: CM!, K!).

This is a common shrub on the dry calcareous hills of Oaxaca and southeastern Puebla. Most botanists have followed Small (1910) in calling it *Mascagnia seleriana*, and have ignored Jussieu's name, which Small did not mention. Niedenzu (1928) recognized both species, but he used the name *M. parvifolia* only for its type, and called the other collections he saw *M. seleriana*. It is true that Jussieu's type had unusually small leaves, but plants with leaves nearly or quite as small are to be found in any large assemblage of collections of the species, and I have no doubt that they represent a single taxon.

Mascagnia sericea Nied., Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 3: 29. 1908. *Hiraea sericea* Engelm. in A. Gray, Pl. Wright. 1: 37. 1852, not *H. sericea* Adr. Juss., 1833. *Mascagnia cana* Small, N. Amer. Fl. 25: 120. 1910, nom. superfl.—TYPE: MEXICO. Durango: [La] Cadena, *Wizlizenus* (lectotype, designated by Small, 1910: MO).

Small (1910) rejected the combination *Mascagnia sericea* (Engelm.) Nied. because it was based on a later homonym, publishing instead as a *nomen novum* the name *Mascagnia cana*, and although Niedenzu (1928) retained the name *M. sericea*, most taxonomists have used Small's name for this species. However, there was no earlier *M. sericea*, so Small should have accepted Niedenzu's name as a

new species published in 1908, and the fact that he cited Niedenzu's name as a synonym makes Small's name superfluous. The correct name in *Mascagnia* is *M. sericea* Nied.

Engelmann cited two syntypes in the protologue, *Wizlizenus* from Cadena and *Gregg* from Mapimi; both localities are in eastern Durango near Gómez Palacios. The protologue of *M. cana* gave Cadena, Durango, as the type locality, which I take to be effective choice of the *Wizlizenus* specimen as the lectotype. The species is known from dry scrub on limestone soils in Chihuahua, Durango, Zacatecas, Coahuila, and San Luis Potosí.

Mezia huberi W. R. Anderson, sp. nov.—TYPE: VENEZUELA. Amazonas: Depto. Atures, sandy savanna with rocks, in the region of hills and mountains S and SE of Cerro Camani, 20–25 km W of San Juan de Manapiare, 5°21' N, 66°15' W, 550 m, Oct fr, *Huber 4497* (holotype: MICH!; isotypes: MYF, NY!). Fig. 7.

Frutex vel arbor parva 2–8 m alta. Lamina foliorum majorum 9–17 cm longa, 5–10 cm lata, margine incrassata, subtus densissime et pertinaciter rufosericea. Bracteolae 7–9 mm longae, eglandulosae. Pedicellus 0.5–1 mm longus in flore, 2–5 mm longus in fructu. Petala lateralia abaxialiter sparsim tomentosa vel sericea; petalum posticum glabrum, limbo toto circuito glanduloso-fimbriato vel distaliter dentato. Filamenta glabra, 2–2.7 mm longa, 1/3–2/3 connata; antherae glabrae. Styli recti, parum complanati, apice dorsaliter acuti vel truncati, anticus 2–2.5 mm longus, postici 2.5–3 mm longi. Samara 30–40 mm diametro; ala lateralis fere plana, sparsim tomentosa; 3 alae dorsales planae, parallelae; alulae transversales nullae.

Shrub or small tree 2–8 m tall, the stems densely and persistently sericeous, quadrangular becoming terete. Lamina of larger leaves 9–17 cm long, 5–10 cm wide, elliptical or somewhat obovate, truncate or cuneate at base, slightly revolute and notably thickened at margin, abruptly short-acuminate at apex with the acumen 5–9 mm long, initially sericeous above but soon glabrate except proximally on and near midrib, very densely and persistently sericeous below with the reddish or dark brown hairs sessile, straight, rather tightly appressed, completely concealing all tissues or the lateral veins glabrescent; lamina bearing below 1 large flat or sunken gland at base on each side of midrib and several small impressed glands distally in a single row several mm inside margin, the reticulum and 6–9 pairs of lateral veins raised on both sides but more below than above; petiole 10–15 mm long, persistently sericeous, eglandular; stipules reduced to minute triangular rudiments ca 0.2 mm high, borne on interpetiolar ridges and often hidden by stem hairs. Inflorescence sericeous to subvelutinous with short reddish or dark brown hairs, the finer axes flattened, containing persistent or deciduous much-reduced biglandular bracts subtending branches; floriferous bracts 4–5 mm long, obovate, concave, eglandular, abaxially densely sericeous, adaxially glabrous, deciduous during anthesis; peduncle 6–14 mm long in flower, 15–22 mm long in fruit, subvelutinous like the axes; bracteoles 7–9 mm long, eglandular, abaxially densely sericeous with the hairs reddish brown, adaxially glabrous or sparsely sericeous near margin; pedicel 0.5–1 mm long in flower, 2–5 mm long in fruit, hirsute with spreading basifixed or sub-basifixed hairs. Sepals 5–6 mm long beyond glands, 1.7–2 mm wide, revolute along sides, the glands 3–3.8 mm long, 1.3–1.7 mm wide, obovate or elliptical, compressed but distinct. Lateral petals with the claw 1.7–2 mm long, the limb 9–11 mm long and wide, orbicular, abaxially



FIG. 7. *Mezia huberi*. a) fruiting branch, $\times 0.5$, with enlarged abaxial view of leaf base $\times 2.5$; b) samara, $\times 1$, abaxial view to left, side view looking into apical notch to right; c) umbel of flower buds with two cut off, $\times 2.5$; d) open flower, side view, with one posterior-lateral petal removed, $\times 2.5$; e) lateral petal, abaxial view, $\times 5$; f) posterior petal, abaxial view, $\times 5$; g) androecium laid out, adaxial view, the stamen opposite anterior sepal to left, $\times 5$; h) anthers, side view, from opposite a sepal (left) and opposite a posterior-lateral petal (right), $\times 10$; i) gynoecium, side view, anterior style to left, $\times 7.5$. Drawn by Karin Douthit, a-b from *Huber 4497*, c-i from *Huber 449*.

sparsely tomentose or sericeous in proximal center, crumpled toward margin, erose; posterior petal with the claw 3.5–4 mm long, constricted at apex, the limb 5–7 mm long, 4.5–6 mm wide, suborbicular, glabrous, fimbriate all around the margin or only dentate at apex, the fimbriae rounded and slightly glandular-thickened distally. Filaments glabrous, 2–2.7 mm long, longest and stoutest opposite the 2 posterior-lateral petals, 1/3–2/3 connate; anthers all glabrous, 1.3–2 mm long, shortest opposite posterior petal, those opposite petals with locules equaling connective, those opposite sepals with locules exceeded by connective at apex by 0.3–0.9 mm. Styles straight and erect, stout, laterally somewhat flattened, proximally sericeous, acute or truncate dorsally at apex, the anterior style 2–2.5 mm long, the posterior styles 2.5–3 mm long. Samara subcircular, 30–40 mm in diameter, persistently tomentose or very loosely sericeous, densely so on nut and dorsal wings, more thinly so on lateral wing; nut with the ventral areole 6–7 mm high, 4 mm wide, ovate, bordered by 2 ribs that mostly persist on receptacle; lateral wing 15–18 mm wide, continuous at base, incised to nut at apex, membranous, nearly flat, entire at margin; central dorsal wing 4–5 mm wide, 7–11 mm high, semicircular, flat; 1 flat winglet 2–3 mm wide and 3–4 mm high present on each side of and parallel to central dorsal wing; otherwise intermediate ribs, crests, and winglets absent.

ADDITIONAL SPECIMENS EXAMINED: **Venezuela**. AMAZONAS: Drainage of the Río Manapiare, gallery forest, savannas in mountains between Cerro Morrocoy to the south and the Serranía Colmena to the north, 5°20' N, 66°10' W, 200–350 m, Jan fl/fr, *Huber 449* (MICH, NY); Depto. Atures, drainage of the Río Manapiare, savannas at the foot of the mountains N of Cerro Morrocoy, near "Pozo de la Carlina," ± 12 km W of San Juan de Manapiare, 5°19' N, 66°6' W, 150 m, Oct fl/fr, *Huber 1191* (MICH).

I first saw a specimen of this species while my 1981 paper on the Malpighiaceae of the Guayana Highland was in press, and in a footnote (p. 236) I referred it (with some reservations) to *Mezia rufa* W. R. Anderson. As more collections of both species have accumulated I have come to realize that this plant from near San Juan de Manapiare is a distinct endemic species, and I am glad to name it for its collector, Dr. Otto Huber, the excellent botanist who has made such a fine contribution to our knowledge of southern Venezuela in the last 15 years. The following couplet compares *Mezia huberi* to *Mezia rufa*.

- Habit a shrub or small tree 2–8 m tall; lamina of larger leaves 9–17 cm long, 5–10 cm wide; bracteoles 7–9 mm long; samara 30–40 mm in diameter, the central dorsal wing and 2 parallel winglets flat, the latter not connected by transverse winglets to the lateral wing; lateral wing of samara nearly flat, tomentose, the hairs sinuous and spreading. *M. huberi*.
- Habit a woody vine; lamina of larger leaves 16–28 cm long, 10–17 cm wide; bracteoles 10–12 mm long; samara 60–70 mm in diameter, the central dorsal wing and 2 parallel winglets strongly corrugated and each of the latter connected to the lateral wing by several corrugated transverse winglets; lateral wing of samara wrinkled or corrugated, sericeous, the hairs straight and tightly appressed. *M. rufa*.

Pterandra egleri W. R. Anderson, sp. nov.—TYPE: BRAZIL, Pará: Alto Tapajós, Rio Cururú, Erereri, Jul fl, *Egler 1033* (holotype: MG 23.712!; isotypes: HB!, IAN!, MICH!, NY!).

Frutex 0.5–1.5 m altus. Lamina foliorum majorum 5.5–9 cm longa, 2.3–4.3 cm lata, ovata vel elliptica, subtus pertinaciter tomentosa pilis brunneis, brevistipitatis, usque ad 1.2 mm longis, serpentinis. Fasciculi florum 5–10-flori; pedicelli 11–15

mm longi. Petala alba, limbo 3.5–4 mm longo, 3.2–3.7 mm lato, rotundato vel late obovato. Antherae 1–1.4 mm longae, persistentes, alis 0.2–0.4 mm latis, connectivo apice rotundato.

Low spreading shrubs 0.5–1.5 m tall; branchlets persistently sericeous. Lamina of larger leaves 5.5–9 cm long, 2.3–4.3 cm wide, ovate to elliptical, cuneate to rounded at base, mostly acute or obtuse (sometimes slightly acuminate) at apex, containing many angular translucent dots in the adaxial epidermis at and just within the margin (these especially visible in young leaves), appressed-tomentose to eventually glabrate above, densely and persistently tomentose below or the oldest leaves belatedly and patchily glabrescent, the hairs light brown, short-stalked, up to 1.2 mm long, serpentine to somewhat twisted, strongly non-parallel so as to produce a tomentose rather than a sericeous effect, the midrib and 6–8 pairs of lateral veins obscure above and prominent below, the tertiary veins scarlariform and often prominent below; petiole 6–10 mm long, persistently sericeous; stipules 3–4.5 mm long, completely and smoothly connate, obtuse or rounded at apex, abaxially sericeous or eventually glabrescent, adaxially tomentose. Flowers borne in fascicles of 5–10 axillary to (or somewhat above) the scars of fallen leaves (or bracts?); floriferous bracts and bracteoles similar, 0.7–1.3 mm long, 0.3–0.8 mm wide, triangular or linear, abaxially sparsely sericeous, deciduous in fruit; pedicel 11–15 mm long, 0.5–0.7 mm in diameter, sericeous. Sepals 1.5–2.2 mm long beyond the glands, 1.5–1.8 mm wide, triangular, rounded or obtuse at apex, revolute in anthesis, abaxially sericeous, adaxially glabrous, all biglandular, the glands 0.9–1.2 mm long, flat, elliptical. Petals white, abaxially densely tomentose-sericeous on claw and much of limb but glabrous in the marginal 0.5 mm, adaxially glabrous, the claw 1–1.3 mm long, the limb 3.5–4 mm long, 3.2–3.7 mm wide, round or broadly obovate, erose, the posterior petal slightly larger than the lateral 4. Filaments 1.5–2.8 mm long; anthers 1–1.4 mm long, persistent in fruit, the wings dark red, 0.2–0.4 mm wide, widest at base, slightly shorter than locules, the connective not enlarged, or red and slightly swollen at apex. Ovary with carpels ca 1 mm high, appressed-tomentose; styles slightly subapical, 3.5–5 mm long. Immature cocci ca 3 mm high, spheroid with a base of spongy tissue, densely tomentose.

ADDITIONAL SPECIMENS EXAMINED: **Brazil**. PARÁ: Alto Tapajós, region of Missão Velha, a Mundurukú village ca 2 km N of Rio Cururú, 7°45' S, 57°20' W, 200 m, upper drier part of sandy floodplain between river and village, with scattered shrubs and small trees, partly inundated with runoff water at this season, Feb fl/imm fr, *Anderson 10895* (IAN, MICH, NY).

This species is named in honor of Walter A. Egler, the Brazilian botanist who collected the type and many other Amazonian plants before his tragic death on a field trip in Amapá in 1961. It is probably closest to *Pterandra evansii* Cuatr., but the latter differs in a number of characters, of which the most easily observed are these: leaves sericeous below, the hairs sessile, straight, parallel, up to 0.5 mm long; flowers borne in fascicles of 2–5; pedicels 14–21 mm long; petals narrowly obovate.

The fascicles of flowers in this species are borne at several nodes between vegetative leaves of the previous year and of the current year. I have some reason to believe that the scars subtending those fascicles are from bracts like those described below for *P. hatschbachii*, but the evidence for that is not satisfactory in the specimens now available; younger stems collected while the flowers are in bud and the subtending leaves or bracts are still present will resolve the question.

Pterandra hatschbachii W. R. Anderson, sp. nov.—TYPE: BRAZIL. Mato Grosso: Mun. Alto Araguaia, Rib. Claro, campo rochoso, Sep fl, *Hatschbach 35085* (holotype: MBM 31636!; isotype: MICH!). Fig. 8.

Suffrutex ramo crassiore subterraneo decumbenti et ramis erectis 5–25 cm altis, usque ad 2.5 mm diametro, sericis. Lamina foliorum majorum 6–12.5 cm longa, 2.3–4.4 cm lata, plerumque obovata, basi bullata; petiolus 1–2 (–2.5) mm longus; stipulae 1–2 mm longae, liberae vel connatae. Fasciculi florum (4–) 5–9 flori; pedicellus 11–25 mm longus. Petala rosea, limbo 5–7.5 mm longo, 4–7.5 mm lato, rotundato vel late obovato. Antherae 1.2–1.9 mm longae, deciduae, alis 0.1–0.2 mm latis, connectivo apice triangulari.

Shrublet with woody underground stems trailing and rooting, the erect aboveground stems forming dense carpets in grassy campos, 5–25 cm tall, not or hardly branched, wiry (up to 2.5 mm in diameter), initially densely sericeous, eventually glabrate. Lamina of larger leaves 6–12.5 cm long, 2.3–4.4 cm wide, obovate to nearly elliptical but usually widest at least somewhat above middle, cuneate to rounded at base, thickened and often slightly revolute at margin, obtuse to broadly rounded and often apiculate at apex, often showing many angular translucent dots scattered throughout adaxial epidermis and near margin in abaxial epidermis, bullate at base, initially sericeous on margin, midrib above and below, and lateral veins below, and with scattered more or less appressed hairs on laminar tissue, mostly soon glabrate or persistently sericeous on midrib below, the midrib and 5–7 pairs of lateral veins flat above and raised below, the reticulum white and visible outlining dark arceoles, especially below; petiole 1–2 (–2.5) mm long, persistently sericeous or eventually glabrate; stipules 1–2 mm long, distinct or completely connate (with both conditions on the same stem!), narrowly triangular when distinct, the pair broadly triangular when connate, abaxially sericeous to glabrate, adaxially hirsute. Flowers borne in fascicles of (4–) 5–9 axillary to sericeous triangular bracts 2–2.5 mm long and 2 mm wide, or the scars where they were produced, between previous year's vegetative leaves and the flush of new leaves; floriferous bracts and bracteoles 0.7–1.5 mm long, 0.3–0.7 mm wide, narrowly to broadly triangular, sparsely pilose or glabrous, persistent; pedicel 11–25 mm long, 0.4–0.5 mm in diameter, loosely white-sericeous. Sepals 2–3 mm long beyond glands, 1.8–2.3 mm wide, triangular or ovate, obtuse or rounded at apex, revolute at apex and often at sides, abaxially sericeous, adaxially glabrous, often with translucent dots in the adaxial surface, all biglandular, the glands 0.9–1.5 mm long, flat, elliptical or obovate. Petals pink, turning white in age, abaxially sericeous only on claw and/or on midrib to center of limb, adaxially glabrous, usually showing glandular dots in the center abaxially, the claw 0.5–1.5 mm long, the limb 5–7.5 mm long, 4–7.5 mm wide, round or broadly obovate, erose, the posterior petal somewhat larger than the lateral 4 and with a thicker claw. Filaments 1.7–3 mm long; anthers 1.2–1.9 mm long, deciduous in fruit, the wings 0.1–0.2 mm wide, widest at base and extending upward only 3/4 of the locule, the connective darkening in age, with a triangular apical extension 0.1–0.2 mm long. Ovary with 3 (–4) carpels ca 1 mm high, densely hirsute; styles slightly subapical, 3–5 mm long. Immature cocci ca 3.5 mm high, spheroid, pubescent with soft white basifixed hairs.

ADDITIONAL SPECIMENS EXAMINED. **Brazil.** MATO GROSSO: Mun. Alto Araguaia, vicinity of Ribeirão Claro, NW of Alto Araguaia, grassy campos, 800 m, Feb fl, *Anderson 11400* (MICH); Alto Araguaia, arredores, campo arenoso, Nov fl/imm fr, *Hatschbach 33276* (MBM, NY).

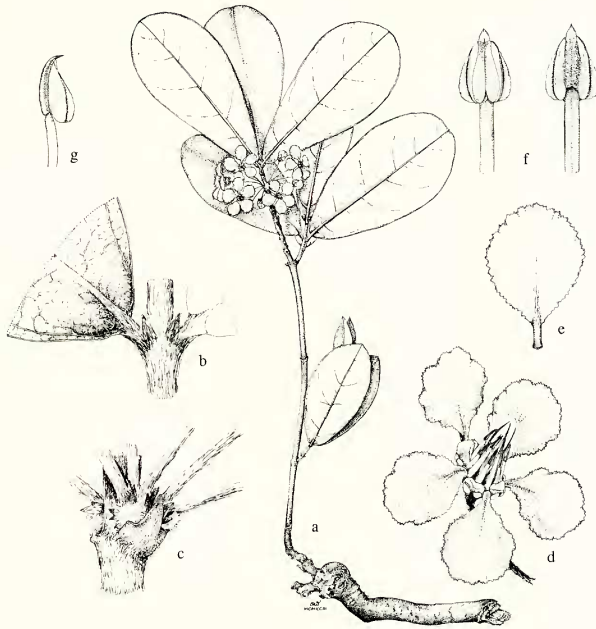


FIG. 8. *Pterandra hatschbachii*. a) habit, $\times 0.5$; b) leaf bases showing stipules and inflated areas at base of lamina, $\times 5$; c) base of fascicle of flowers showing bracts and bracteoles and large bract subtending whole fascicle, this usually deciduous by anthesis, $\times 5$; d) flower with posterior petal at upper left, $\times 2.5$; e) posterior petal, abaxial view showing sparse hairs on midrib, $\times 3.5$; f) anthers, flattened, adaxial view (left) and abaxial view (right), $\times 7.5$; g) anther, side view, $\times 7.5$. Drawn by Karin Douthit, a-b and d-g from *Hatschbach 35085*, c from *Hatschbach 33276*.

I am happy to name this plant for my friend Gert Hatschbach of the Museu Botânico Municipal in Curitiba, whose eagle-eye has led him to so many first collections of undescribed species. *Pterandra hatschbachii* is to be compared to *P. pyroidea* Adr. Juss., a plant of the cerrados of central Brazil. They are similar in producing aerial shoots from a low woody stem that may be subterranean, and *P. pyroidea* usually has obovate leaves with very short petioles. Its petals are pink, and its anthers are deciduous and have a short triangular apical extension of the connective. But *P. pyroidea* is a much more robust plant than *P. hatschbachii*, its erect stems typically 0.5–1 m tall and 2.5–6 mm in diameter. Stem and leaf hairs are much more serpentine or twisted, producing a less appressed vesture, the leaves are usually much hairier, at least initially, and the strongly scalariform tertiary veins are usually prominent below, much more than the rest of the reticulum. Also, the petals of *P. pyroidea* are usually hairier abaxially than those of *P. hatschbachii*.

Tetrapteryx monteverdensis W. R. Anderson, sp. nov.—TYPE: COSTA RICA. Puntarenas: Monteverde Cloud Forest Reserve, Sendero Pantanoso, swampy area on continental divide, lower montane rain forest, 10°20' N, 84°50' W, 1500–1600 m, Jun fl, *Haber ex Bello* 5217 (holotype: MICH!).

Liana lignosa, ramis appresso-tomentosis, demum verruculosis. Lamina foliorum majorum 8–16 cm longa, 4.5–7.2 cm lata; stipulae in paribus interpetiolaribus connatae, pari 4–6 (–7.5) mm longo, 1.2–3 mm lato, anguste triangulari. Sepala abaxialiter glabra vel sparsim sericea in dimidio distali. Petala lateralibus ungue 1.5–2.5 mm longo, limbo 6–10 mm longo, 4–8 mm lato; petalum posticum ungue 2–2.8 mm longo, limbo 5–5.5 mm longo, 4–5 mm lato. Samara alis lateralibus liberis, 2 superioribus 25–48 mm longis, 10–17 mm latis, 2 inferioribus 10–30 mm longis, 6–13 mm latis.

Woody vine; stems densely appressed-tomentose with several layers of hairs with sinuous to nearly straight crosspieces, those of the outer layer with a definite slender stalk; older stems roughened by tiny bumps or pegs (persistent hair bases) after hairs fall. Lamina of larger leaves 8–16 cm long, 4.5–7.2 cm wide, ovate or elliptical, rounded or subcordate at base, obtuse, acute, or acuminate at apex, initially sericeous above but very soon quite glabrate, loosely sericeous to glabrate below with the hairs stramineous or white, those of the lamina surface 0.4–1.2 mm long, those persistent on midrib straight but at least some short-stalked and somewhat spreading, the abaxial glands 1–several near base and none or few on proximal 1/3 of lamina, the reticulum of fine veinlets prominent on both sides; petiole 8–15 mm long, eglandular, loosely sericeous to glabrate; stipules connate in interpetiolar pairs, the pair 4–6 (–7.5) mm long, 1.2–3 mm wide, smaller in inflorescence, narrowly triangular, abaxially sericeous. Inflorescence appressed-tomentose like stem, cymose-paniculate with the branches terminating in an umbel of 4 flowers; floriferous bracts 1.5–2.5 mm long, ovate, sparsely sericeous to glabrate; peduncle 3–5.5 mm long, persistently tomentose; bracteoles 1–1.5 mm long, ovate, apical; pedicel 3–7 mm long, tomentose or velutinous to glabrescent even before anthesis. Sepals ca 1 mm long beyond glands, ca 1.5–2 mm wide, broadly rounded, abaxially glabrous or only sparsely sericeous beyond glands, adaxially glabrous, pressed against filaments in anthesis, the anterior eglandular, the lateral 4 biglandular with the glands 2.7–4 mm long, obovate. Petals yellow, turning orange in age, glabrous, erose, nearly truncate at base, the lateral 4 reflexed, with claw 1.5–2.5 mm long and limb 6–10 mm long, 4–8 mm wide; posterior petal erect, with claw 2–2.8 mm long and limb 5–5.5 mm long, 4–5 mm wide. Filaments 2–3 mm long, glabrous except for tufts of hair abaxially at base, nearly straight, 1/3–1/2 connate; anthers 1.3–2 mm long, glabrous, more or less alike, the connective swollen. Ovary 1.5–2 mm high, sericeous, prominently crested; styles 2.3–3 mm long, sericeous at base, the anterior style slightly shorter and slenderer than the posterior 2. Samara tomentose or subsericeous, the lateral wings distinct, the upper ones 25–48 mm long and 10–17 mm wide, the lower ones 10–30 mm long and 6–13 mm wide; dorsal wing 3–6 mm wide, entire or slightly erose; nut smooth between dorsal and lateral wings.

ADDITIONAL SPECIMENS EXAMINED. **Costa Rica.** GUANACASTE: Río Negro, Tilarán, Finca Hermanos Bello, 10°21' N, 84°49' W, 1400 m, May fl, *Haber* 7141 (MO).—PUNTARENAS, Monteverde: lower montane rain forest, 1550 m, Aug fr, *Gentry et al.* 48834 (MICH); lower montane wet forest, 1550 m, Sep fr, *Haber* 2811 (MICH); Pacific slope, lower montane wet forest, 1400 m, Jun fl, *Haber ex Bello* 5061 (MO); upper San Luis river valley on Pacific slope, moist to wet forest transition, 1300–1400 m, Aug fr, *Haber ex Bello et al.* 5408 (CR, MICH).

This is a species of section *Lophogynixa* Nied., apparently endemic to the region of Monteverde, for which it is named. *Tetrapteryx monteverdensis* is distinguished by its stalked stem hairs that leave the stem verruculose, the relatively small leaves, the long narrow stipule-pairs, the distally glabrous sepals, the large petals, and the large samaras. Its high-elevation habitat also merits mention.

Tetrapteryx skutchii W. R. Anderson, sp. nov.—TYPE: COSTA RICA. San José: vicinity of El General, 975 m. Aug fl, *Skutch 2808* (holotype: NY!).

Rami dense sericei. Lamina foliorum majorum 10.5–13.2 cm longa, 5.2–6.9 cm lata, obovata, basi cuneata, apice acuminata, subtus sericea vel glabrata pilis flavis, rectis, sessilibus, appressis, 1–1.5 mm longis; stipulae in paribus interpetiolaribus connatae, pari 2–3 mm longo, 1.5 mm lato, triangulari. Inflorescentia laxe aureosericea, floribus in umbellis 4-floris, pedunculo 3–9 mm longo, pertinaciter sericeo, pedicello 4–5 mm longo, tomentoso mox glabrescenti. Sepala abaxialiter dense aureosericea. Antherae pilosae, inter loculos sericeae. Stylus anticus valde redactus, per anthesin non visibilis.

Woody vine (?); stems densely sericeous, the hairs straight, sessile, appressed, leaving tiny pegs after falling. Lamina of larger leaves 10.5–13.2 cm long, 5.2–6.9 cm wide, obovate, cuneate at base, acuminate at apex, initially sericeous but soon glabrate above, sericeous to glabrate below with the hairs golden, straight, sessile, appressed, 1–1.5 mm long, without large glands at base but with a row of small impressed glands below parallel to but set well in from the margin, extending the whole length of the lamina, the reticulum prominent on both sides; petiole 7–9 mm long, eglandular, persistently sericeous; stipules connate in interpetiolar pairs, the pair 2–3 mm long, 1.5 mm wide, triangular, abaxially sericeous. Inflorescence (including all the axes distal to the last pair of full-sized leaves) golden-sericeous with several layers of hairs adding appreciably to diameter of axis, the outermost layer relatively loosely appressed, cymose-paniculate with the branches terminating in an umbel of 4 flowers; floriferous bracts 1.3–2 mm long, ovate, abaxially sericeous, adaxially glabrous; peduncle 3–9 mm long, persistently loosely sericeous or subtomentose; bracteoles 1–1.5 mm long, ovate, apical; pedicel 4–5 mm long, appressed-tomentose to glabrescent already in anthesis. Sepals ca 1 mm long beyond glands, ca 2 mm wide, broadly obtuse or rounded, very thick, incurved in anthesis, abaxially so densely golden-sericeous as to completely conceal all sepal tissue, adaxially glabrous, the anterior eglandular, the lateral 4 biglandular with glands ca 3.5 mm long, elliptical. Petals yellow, glabrous, erose, sagittate at base, the lateral 4 reflexed, with claw 1.5 mm long and limb 5.5–6.5 mm long, 4–6 mm wide; posterior petal erect, with claw 2 mm long and limb 4.5 mm long, 4 mm wide. Filaments 1.7–2 mm long, glabrous except for tufts of hair abaxially at base, straight, ca 1/2 connate; anthers 1.4–1.6 mm long, loosely pilose, especially at base and apex, and densely sericeous between locules, the connective dark red. Ovary ca 1.3 mm high, sericeous; styles straight, the posterior 2 ca 2 mm long, stout and visible above anthers, the anterior style only 1 mm long, very slender, pressed between the other 2 and hidden by stamens, not evident in open flower. Fruit not seen.

This species is named for Alexander F. Skutch, collector of the type and only known specimen. *Tetrapteryx skutchii* belongs to section *Lophogynixa*, within which it is allied with *T. donnell-smithii* Small. It is distinguished from that and similar species by its abundantly pilose anthers, a most unusual feature in the genus. It is

also notable for the long, straight, sessile, appressed leaf hairs, the golden, moderately loose vesture of the inflorescence, the abaxially densely sericeous sepals, and the much-reduced anterior style.

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